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A Practical Guide To
PREFABRICATED HOUSES

A Practical Guide to
**PREFABRICATED
HOUSES**

By A. L. CARR

I L L U S T R A T E D



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A PRACTICAL GUIDE TO PREFABRICATED HOUSES

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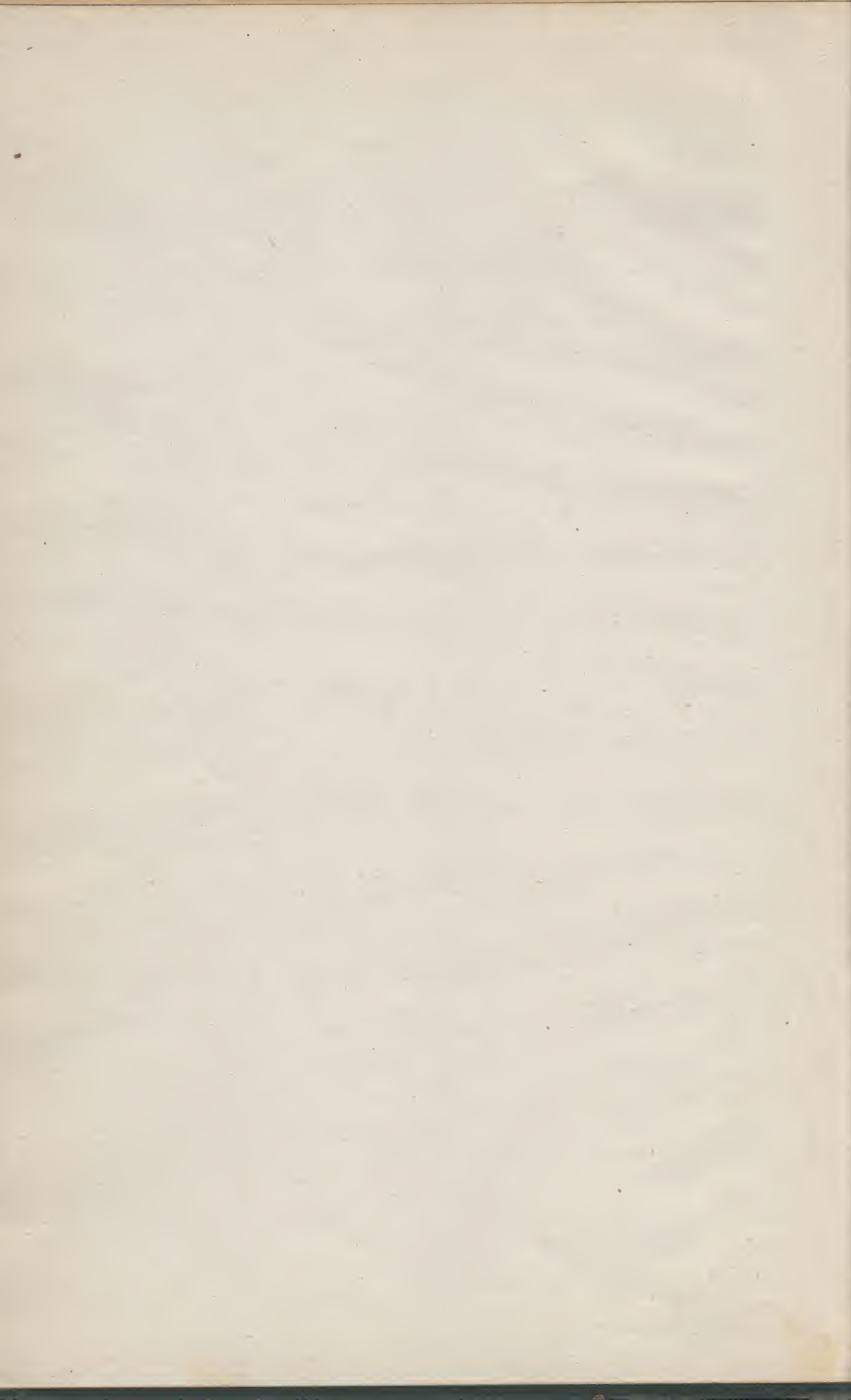
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To KATHARINE

Partner in all my worth-while endeavors



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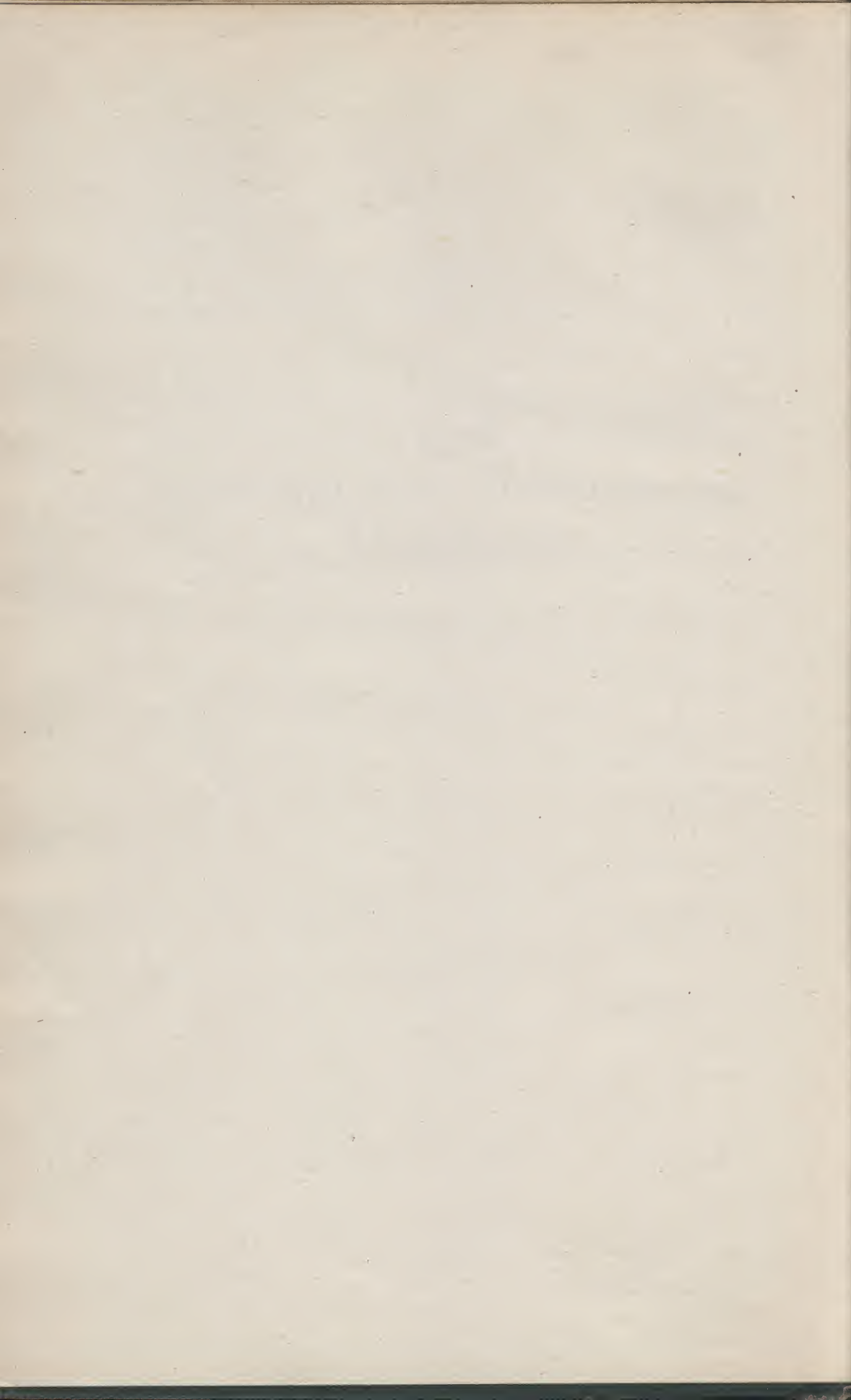
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Part I

THE PREFABRICATION INDUSTRY
AS A WHOLE





Building Methods from Noah Till Now

CENTURIES have passed since Noah and his three sons felled the cypress trees, hewed them into planks and timbers, whittled out innumerable pegs and undertook the slow and laborious task of constructing the Ark. Our mass production age has little in common with the age of Noah. We wear mass produced clothes, eat mass produced foods, drive mass produced automobiles, but, when it comes to the construction of homes, we are back to Noah again. It is true that building materials have changed. Nails have displaced wooden pegs, the lumber yard supplies smooth surfaced joists or siding in uniform lengths, and science and industry have contributed a myriad of new materials. Our methods of construction, however, remain antiquated and uneconomical. Thousands of pieces of lumber in comparatively small sizes are brought to the place of construction and here each piece is carefully measured, cut, fitted and nailed by hand in approximately the same way these operations have been performed for centuries. We mix mortar and lay bricks one at a time just as the ancient Egyptians did. Noah might feel strangely out of place amid modern materials, but he would be quite at home among the building methods we employ.

Suppose we built automobiles by the

same handicraft methods we employ in building houses. Three results are obvious, and each is undesirable. First, we could not obtain our new automobiles as quickly as under mass production methods. It would be necessary to employ an engineer to draw up plans, and we would have to consult with him concerning the body design, the type of engine, and the upholstery. A contractor would have to be employed and he, in turn, would employ subcontractors to take over portions of the job. The materials would have to be selected, ordered from various sources and then assembled. Instead of walking into a dealer's showroom, writing out a check and driving out with a new car, we would have to wait for weeks and perhaps months for completion of our custom-built car. Secondly, an automobile so designed and constructed would not be as good a car as one rolling off a factory production line. Materials ordered from various sources would not have standardized design or uniform measurements, and parts would probably require substantial alteration in order to be fitted together at all. Thirdly, a hand-built car would be too expensive for most people who now own automobiles. Alfred P. Sloan, Chairman of the Board of General Motors Corporation, stated that a hand-made Chevrolet would cost not less than \$5,000, and

would be a poorer car than factory-built models. Thus if we built automobiles as we build houses, we could expect to have fewer cars, poorer cars and more expensive cars.

These results are realities in the housing field. Fully half of our population has never been housed, in the real meaning of the term, but has lived in obsolete housing discarded by the higher income groups. Six million families have no running water and ten million have no bathrooms. These families want new, modern homes, but the high cost of housing constructed by hand has placed it out of their reach. Income studies show that in 1939 about 85 per cent of American families had annual incomes of \$2,500 or less. According to recognized standards, these families should pay no more than twice their annual income (that is, \$5,000 or less) for a home, yet practically all of the private home building in the past twenty-five years has been of houses selling for considerably more than \$5,000. By 1940, a deficit of two million homes already existed. The accumulated obsolescence of old dwellings during five years of war has increased that deficit by an additional 1,500,000 homes. Hundreds of thousands of veterans and transplanted war workers are returning to find that there are no suitable living accommodations for their fam-

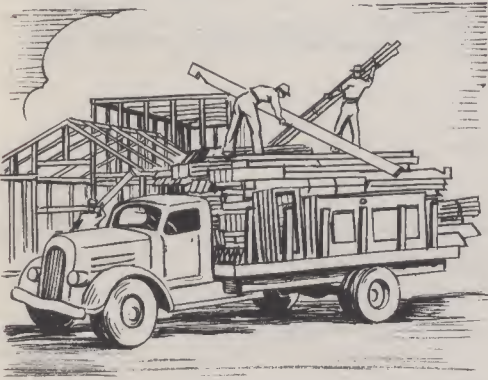
ilies. The means of supplying millions of comfortable, modern homes quickly and at prices which most people can afford is one of the principal present-day problems.

Fortunately, we are not wholly dependent upon the hand saw and hammer methods of construction in this emergency. In recent years a revolution has been taking place in the building industry. Far-seeing individuals and companies have attempted to bring a delinquent construction system into step with the mass production age and to construct houses in the same manner we build furniture or automobiles.

If you want a new house, you may now go to a number of companies and select from scores of plans and designs the type of home you desire. It may be Cape Cod, Colonial or modern in design, it may have one bedroom or four as you choose, but in the construction, it will be an altogether new kind of house. The men who come to erect it will come without chisels, mitre boxes and saws. They will have the job completed in less than a week. There will be no unhappy piles of waste lumber, no trash to haul away. You can move in without delay when the workmen leave. To your admiring friends you can say, "It's prefabricated."

What Do You Mean—"Prefabricated"?

It has been said, and with much justification, that prefabrication is "all things to all people." To some it means a completed house with each light bulb attached in its socket, rolling off the production line. To others it signifies no more than factory-built door and window units ready for installation in traditionally-built homes. While it is next to impossible to obtain a definition inclusive enough to encompass the various types and degrees of prefabrication, it is not difficult to assay the general purpose of the prefabrication industry. It proposes to apply the most up-to-date industrial principles of mass production to the realm of home construction. Instead of cutting and fitting on the site each of the many small units that go into a home, it would employ machinery in an orderly production line to perform these operations more quickly, accurately and cheaply. In varying degrees simplified construction is sought by increasing the proportion of work to be done before erection. There are five principal methods of prefabrication now being practiced throughout the country.



PRE-CUT—Every piece measured, cut and marked for easy erection.

(1) **Pre-Cut Method.** A pre-cut house differs from the traditionally-built house in only one important respect—all the measuring and sawing is done at the factory. The prospective buyer selects a plan from many diversified styles displayed in a catalogue or showroom. Within a week or two there is

delivered at the building site all of the material which goes into the construction of his home, each piece having been carefully cut to the right size and numbered for identification. These are then assembled by local workmen or, perhaps, by the owner himself if he is proficient with a hammer. The plumbing, electrical and heating systems are installed in the course of erection exactly as in the traditionally-built home.

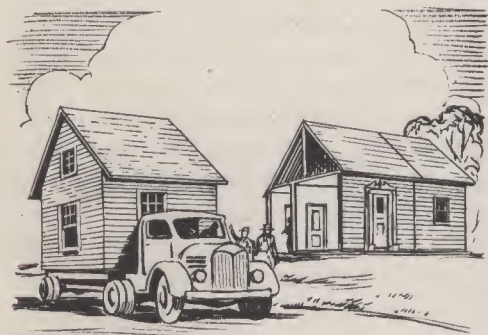


PANELS—Materials cut and fabricated into complete panels with doors, windows, and insulation installed.

(2) **Panel Method.** This type of construction carries factory operations a step further than the pre-cut system. After the materials have been cut to the proper size and shape, they are not then shipped to the site (as in the case of pre-cut homes), but are moved to another part of the factory where they are assembled into large wall, floor, ceiling and roof sections. Each section is a solid unit and may be as large as 8 feet high by 21 feet long. The panels produced by some companies consist merely of the framing studs and plates nailed together and attached to the exterior sheathing. If this is all the work that is performed at the factory, it saves only a little more time at the site than does the pre-cut method. It is still necessary to apply siding, shingles, or some other finish to the exterior, and lath and plaster or wall-boarding on the interior after the panels are delivered at the place of construction. Most companies, however, complete both the inte-

rior and exterior of the panels at the factory so that they need only to be joined together at the site.

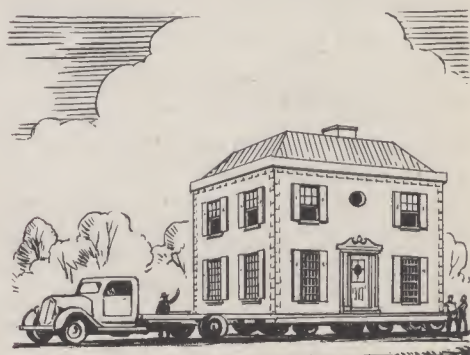
A further development of the panel system is the standardized or modular panels used by several concerns. By this method all-wall panels, whether they contain windows, doors, or blank wall, are the same size. Thus a company can offer many different plans and designs of homes by simply changing the number or arrangement of the panels used. These panels are usually 4 feet by 8 feet in size, although some companies employ other sizes. The wall panels are solidly constructed with the interior and exterior surfaces permanently bonded to wood or steel frames with the latest plastic materials. All panels are completely insulated. The door and window sections are equipped with frames, doors, windows, hardware and screens at the factory. The panels, equipment and parts for a complete home are shipped by truck or rail to the owner's site, where the panels are set up and locked to each other and to the foundation with invisible steel connectors. This type of prefabricated home ordinarily comes complete with all necessary plumbing, lighting and heating installations, and sometimes is furnished with electric refrigerator, stove and washing machine.



SECTIONS—The entire house assembled by factory experts into a few easily joined, truckable units.

(3) *Sectional Method.* By this system the factory produces complete sections of houses, rather than flat panels to be joined together at the site. A cottage 30 feet in

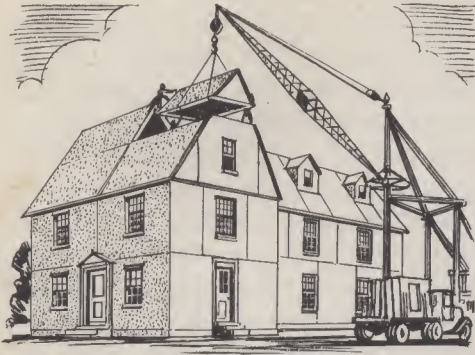
length by 24 feet in width, for example, might be produced in four sections $7\frac{1}{2}$ feet wide by 24 feet long by $9\frac{1}{2}$ feet high. Each section would contain one complete portion of the building: floors, walls, ceiling and roof with the plumbing and lighting equipment, bathroom and kitchen fixtures, heating facilities, windows, doors, screens, cabinets, even the clothes hooks in the closets and the towel racks in the bathroom installed at the factory. Special cranes lift each section on to large truck trailers at the factory and again from the trailer to the foundation at the site. Such a sectional house may be trucked hundreds of miles from factory to foundation and be completely erected on the site in less than a day's time.



COMPLETE ASSEMBLY—Smaller homes are sometimes wholly constructed at the factory and delivered ready for occupancy.

(4) *Complete Assembly Method.* This type of prefabrication is exactly what its name implies — a system by which the home is entirely built and outfitted at the factory. The real problem encountered by this method is the difficulty of transporting the home from factory to site. Either the house must be quite small and compact in order to permit hauling for some distance, or, if it is larger, it must be used in the immediate vicinity of the factory. As a result of these transportation difficulties, this type of prefabrication is, and will probably remain, very limited.

(5) *Cast Concrete Methods.* Mention must also be made of certain methods re-



CONCRETE—New lightweight, insulated concrete can be formed into large building panels or complete house units.

lating to the use of concrete, which, although not widely employed in the past, now show promise of commercial development. In general two principal methods

have been utilized, although countless variations of these methods have been introduced. The first is the precasting of the concrete into large floor, wall, ceiling and roof panels which are then transported to the site and swung into place by a movable crane. The units are usually hollow cored for lightness and insulation, and the walls are dressed up with decorative indentations, lines or friezes so that little finishing is required.

By the second method elaborate molds are transported to the site and into these quick-drying concrete is poured so as to form a complete house in one operation. The molds can then be removed, transported to a new site and the operation repeated.

The History of Prefabrication

The idea of prefinishing or prefabricating a house is not new. More than half a century ago a few companies began to pre-cut lumber to the exact size and shape required by local contractors. In time basic house plans were developed and all the items used in the construction of such a house, from pre-cut rafters and beams down to the front door key, were offered for sale as a "package" or "unit." Large mail-order firms took up the distribution of pre-cut homes and this type of prefabrication has become widely known as the "mail-order house."

At about the same time that the pre-cut method was developing, the early antecedents of the panel type of prefabrication were being introduced. The operations of one of the first companies to enter this field date back as far as 1892. The early manufacturers of this type of factory construction confined their production, for the most part, to smaller structures such as chicken houses, vacation cottages and children's play houses. Later they undertook the production of garages and larger dwellings, but it was not until the introduction of the sheet materials, such as plywood, fiberboard, plaster and gypsum board that the panel method of prefabrication developed into its present form.

Shortly after the beginning of the present century, a number of experimenters attempted to apply industrial techniques to the construction of concrete houses. The inventor, Thomas A. Edison, was one of these. In 1908 he patented a method for casting in place a one, two or even three story house in a single operation. Cast-iron or wooden forms were to be assembled and bolted together on the foundation to the entire height of the house and then concrete was to be carried from the mixer by a mechanical conveyor to funnels at the top of the form. Because of Edison's prominence, his experiments attracted wide attention, but they proved impractical and were soon abandoned.

The experiments of the able architect, Grosvenor Atterbury, although they attracted less attention than those of Edison, were much more successful. The Atterbury system employed hollow-cored, precast concrete panels for walls, floors and roofs which were molded at the factory, hauled to the site and then swung into place by large cranes. Between 1913 and 1918, this system was extensively employed in the erection of the Russell Sage Foundation low cost housing development in Forest Hills, Long Island, and produced houses which were attractive, durable and livable. However, since the precast units were heavy to transport and difficult to put in place and a large investment was necessary in plant and equipment, the system fell into disuse except for large-scale building developments.

With the exception of a brief flurry of construction of emergency housing and barracks during the First World War, little of interest occurred with respect to prefabrication methods until the late 1920's and the early 1930's. Then four wholly unrelated events caused the prefabrication movement to spring to life and to turn into new avenues of expression.

The first of these was the *stimulus of new ideas*. A number of prominent architects and designers attracted wide attention by proposing radical new designs for the house of the future. Perhaps the most revolutionary of these new designs was the "Dymaxion House," an eight-sided structure suspended in mid-air from a large central core, which was introduced in 1927 by Buckminster Fuller. In the projected Dymaxion House, one could drive his car into the shelter area beneath the first floor, step into the elevator in the central core and be carried to the first floor living area, containing living and dining room, kitchen, laundry, bedrooms and baths, or to the top or roof deck intended as an outdoor recreation area. All the utility services—plumbing, heating, air conditioning, laun-

dry—were to be built into the central core. In daytime the house was to be lighted via translucent and transparent plastic walls and at night by carefully planned, built-in indirect lighting. Fuller estimated that such a house fully equipped (even to non-slamming pneumatic doors and a television unit) would cost only \$3,000 if full-scale mass production were adopted. Other houses of the future designed by such well-known architects as Richard Neutra and George Fred Keck, though somewhat less abrupt in their departure from traditional designs, were equally stimulating to thought and discussion, and the daily newspapers and periodicals gave wide publicity to the emergence of these new ideas and designs.

A second factor which gave impetus to the prefabrication movement was the *introduction of sheet materials*. As long as traditional materials such as sheathing, siding and lath were employed, the assembly of a house, even under factory conditions, was bound to be slow and laborious. However, when new materials like plywood or wallboard became available in large thin sheets, the nailing in place of hundreds of pieces of lath and numerous narrow pieces of sheathing or siding became unnecessary. By new bonding methods, appropriate sheet materials and framing could be welded together with phenolic resin under heat and pressure into a strong laminated structural panel. Many new systems of prefabrication were developed in the 1930's based upon the use of wall and fiber boards in 4 by 8 feet sizes, and these materials have now been increased in dimensions, so as to be available in the sizes required for the entire side of a room or wall.

A third factor was the enormous quantity of *research and experimentation* conducted by non-commercial as well as commercial organizations. The Pierce Foundation Housing Research Division created in 1931, the Purdue Research Foundation Housing Project organized in 1935 and the



Sheet materials have simplified the manufacture of house panels.

Bemis Foundation established in 1938 are three endowed agencies which have pioneered with various types of construction, studied and tested structural materials and methods and continually influenced the prefabrication movement. Agencies of the federal government, such as the Forest Products Laboratory, the Bureau of Standards, the Farm Security Administration and the T.V.A., made tests and set up standards for structural methods, materials and equipment and have undertaken to develop and erect low cost housing embodying materials and methods thus tested and approved. The F.S.A. constructed whole communities of low cost homes for sharecroppers and dust bowl evacuees. T.V.A., in order to provide temporary housing for construction workers on dams and power facilities, developed a house in truckable sections which was built and assembled at the factory, hauled to the site in large sections and then quickly joined together. The first units built by T.V.A. were moved over rough roads as far as 80 miles from the plant and proved a complete success. Later full-sized houses were constructed by this sectional method and a number of companies throughout the country were licensed to employ the T.V.A. system.

The fourth factor which gave impetus to the prefabrication movement was the *depression* which began in 1929. When hard times came, there were many who re-

called the prediction that new and modern homes could be supplied by mass production methods for as little as \$3,000. Raw material producers viewed prefabrication as a potential market to bolster up declining sales for steel, plywood and equipment. For a time it seemed that prefabrication would be the promising new industry which might pull America out of economic morass. Individual companies, such as American Rolling Mills, United States Steel and Republic Steel, set up subsidiaries to use steel in the manufacture of prefabricated houses. Equipment manufacturers, such as Harnischfeger Corporation and Hobart Brothers, began to produce housing by factory methods employing their machinery. Manufacturers of insulating board, such as Celotex Corporation and Homasote Company, set up housing companies to push the use of their materials. In addition, scores of new concerns entered the field and tried their hand at one or more types of prefabricated homes. Many of today's well-known prefabricators—American Houses, Gunnison Housing Corporation, General Houses and others—were organized during this period.

Despite all the enthusiasm and the ballyhoo, prefabrication failed to burst forth as a major industry during the depression era. There were numerous reasons for this failure. The low prices suggested by Fuller and others were predicated on the assumption of large-scale mass production methods, and houses proved far more costly when small-scale operations were at-

tempted. The purchasing volume of small plants was too limited to affect the savings in cost of raw materials possible in mass buying. Many of the smaller concerns were inadequately financed and could not survive long periods of experimentation. Marketing facilities had not been worked out and insufficient assistance and guidance in erection were afforded to the purchaser. Consequently, a large part of the public lost interest in prefabrication and the prefabrication industry entered upon a period of lean years. These years were spent by many of the surviving companies in re-engineering and redesigning their basic house plans and in engineering their plants for efficiency and speed. Merchandising systems were improved and simpler erection methods devised. And finally, they began to sell their houses, not on the basis of publicity and ballyhoo in the Sunday supplements, but on appearance, convenience and dollar value.

Nevertheless, when the war came, the prefabrication movement was still in the experimental stage. It has emerged from the war in the mass production stage, infinitely stronger than when it went in. The government's wartime housing program provided the first volume market the industry has ever enjoyed, and it has demonstrated what prefabrication can do under favorable conditions. The industry has acquired large plant facilities and it has a trained personnel. It is now in a position to become a strong contender for a major share of the current housing requirements.

The Advantages of Prefabrication

Mass production methods have proved themselves superior to hand methods in the production of automobiles, clothes and breakfast food. The construction of houses is proving to be no exception to the rule. Prefabrication, when employed on a substantial scale, affords a number of important advantages to the home builder over traditional methods of building.

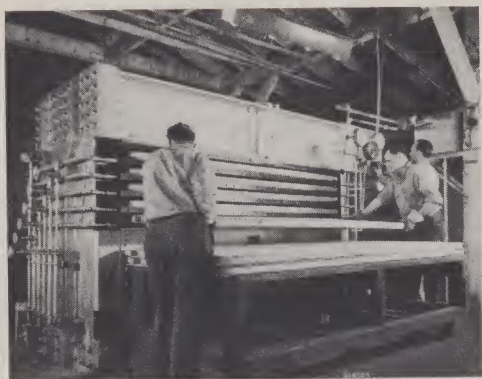
Less Expensive. Prefabricated homes are less expensive, in the first place, because prefabricators have eliminated much of the middleman's profit and the waste of labor and materials which are involved in the traditional construction. A survey made in 1943 and 1944 by the Comptroller of United Construction Workers (an affiliate of United Mine Workers) revealed that the materials and mechanical equipment for a \$5,000 house actually cost \$1,200 at the initial source. Approximately \$2,500 or half of the total cost of such a house is consumed in wholesaler-jobber-retailer transactions. Less than \$250 worth of lumber at the original mill costs the home owner almost \$1,100, trim worth \$195 costs him \$980, \$4 worth of glass at the wholesale source ends up with a retail price tag of ten times that amount. The shipping, handling and storing charges and the profits of the various middlemen who are involved in distributing and selling the thousands of parts that go into the ordinary house consume most of the price of the house. The prefabricator, since he buys in mass, is able to make his purchases directly from the producer of the material, and thus bypass the sales and handling costs of numerous middlemen with their pyramiding profits. Thus material costs are reduced by as much as forty per cent.

In the second place, prefabrication is more economical in the use of materials than ordinary construction. When hand saw and hammer methods are employed, an allowance of at least 20 per cent must be made for waste. Often when there is poor management and workmanship on a

construction job, the waste greatly exceeds this amount. Mass production methods, by purchasing materials in the exact sizes required, by careful engineering and design so as to eliminate waste and by precision, machine operations, make it possible to utilize almost 100 per cent of the materials purchased.

In the third place, the labor costs on a prefabricated house are less than on a house built by ordinary methods. Union labor in the prefabrication factory receives from \$.75 to \$1.00 per hour as compared to an hourly rate of from \$1.00 to \$2.00 for carpenters and other skilled workmen in the building trades. This disparity results, in large measure, from the fact that the factory worker is sheltered from the elements and can work and earn throughout the year without being dependent on the weather, whereas ordinary building is seasonal and the carpenter or mason is able to work and earn during only part of the year. The result, however, is that the labor costs (even assuming the number of man hours to be the same) for the factory system are about half those of the traditional building system.

Not only is the cost of labor per hour reduced by prefabrication, but the man hours required to construct a house are likewise reduced. Every "tailor-made" job necessitates bringing a certain amount of equipment to the site, setting it up there, and then removing it when the job is finished. Not so in the factory. There equipment is set up only once for the production of hundreds or thousands of homes. In ordinary construction, tools and equipment must be gathered up and stored away and materials must be put under shelter at the close of each day. In the factory, equipment and materials are always under shelter. Furthermore, machine powered conveyors and hoists in the factory do many of the hard and slow tasks which must be performed by hand in site construction.



Panels are bonded in heated hydraulic presses to form sturdy, durable walls.

It is unlikely that prefabricators will be in a position to pass along immediately all of these savings to the home buyer. Every new industry is faced with many developmental expenses which increase production and selling costs in the earlier stages of operation. Nevertheless, prefabrication already offers a substantial reduction in cost over ordinary building methods. Most prefabricators are concentrating their principal activities in the price field \$4,000 to \$8,000, although a subsidiary of a well-known rubber company plans to sell a two bedroom house with modern equipment for less than \$2,500, and some of these companies have models which sell up to \$20,000.

Better Construction. A few years ago a South American coffee grower, while on a business trip to the United States, chanced to remark that frequent earthquakes in his native country often damaged or destroyed the houses there. It was suggested to the coffee grower that he investigate some of the prefabricated houses which were being introduced on the market at that time. He made careful inquiry into the construction of these factory-built houses and finally purchased one, had it shipped to his plantation and erected there. Since that time, quakes and shimmies have come and gone, but the most that has happened to the house he bought is a few broken windowpanes. One need not go to South America, however, for

proof of the better construction offered by factory fabrication. Numerous tests conducted in wind tunnels, laboratories, and in the field provide ample confirmation of this fact. Some prefabricated houses have demonstrated a capacity to withstand windloads up to 200 miles per hour, as compared with 70 miles per hour for conventional houses. Factory-built floor panels have been tested to withstand a live load in excess of 600 pounds per square foot, while floors of conventional houses have an average strength of approximately 50 pounds per square foot.

New materials are being employed in factory-built homes to give increased strength and durability. Light metals such as aluminum and magnesium, now available at new low prices and in greatly increased quantities, are being used in wall and roof panels and in structural units. Many prefabricators employ steel for such supporting members as joists and studs. One of the most important improvements is the plywood panel, impregnated and bonded with phenol formaldehyde resin, which is much stronger than ordinary wood. Windows which admit the ultraviolet rays of the sun are being made of plastics such as Plexiglas and Lucite, which were developed during the war for use in bomber noses and gun turrets.

The nature of the work involved in prefabrication also contributes to better construction. Machine operations are usually more precise than hand operations, and repetitive tasks in the factory are more conducive to good construction than diverse tasks on the site. Thus one finds a precision and exactness in measurements and fittings in mass production homes which are absent in traditional building. The net result is a stronger, better, longer lasting house.

Better Design and Plan. The average family about to build a home either draws its own plan, selects one from a book of house plans, or employs an architect. Where no architect is employed, many en-

gineering and architectural problems are certain to be overlooked. Perhaps as a result the house is poorly balanced in appearance, does not heat well or presents other problems stemming from faulty design. Even if an architect is employed, it is unlikely that his fee will permit him to devote more than a few weeks to a single house plan. In contrast, major prefabricators employ not one architect, but several architects and engineers who devote months and even years in the designing and perfecting of house plans which will provide the maximum in attractiveness, comfort and durability for the lowest possible cost. In response to a recent questionnaire sent out to prefabricators, it was determined that the average number of architects employed by each company is between three and four. These companies have poured hundreds of thousands of dollars into the designing of homes and construction of experimental models to test out their architectural and engineering soundness. Thus the prefabricated house which is ultimately delivered to the home owner is the result of research and design far in excess of what any individual could afford in planning a single house.

Speed in Construction. One man equipped with the power machinery of a factory production line can do the work of many men employing only hand tools. Thus the larger the proportion of the work done by factory methods, the greater the saving in time and labor. The pre-cut method of prefabrication effects a saving of approximately 25 per cent in the time and labor required for construction, and the panel and sectional methods, which carry factory operations much further than the pre-cut, effect even further savings in time. One company has long advertised "a home every 25 minutes" and it plans to reduce this time to the point where a new house will come rolling off the assembly line every fifteen minutes. Furthermore,

since the traditional building trades are in the business of constructing office buildings, apartment houses, theaters, stores and other business structures, as well as houses, the family which desires to build a home in the usual manner must compete with these larger and more profitable building jobs. The prefabrication industry, on the other hand, is primarily in the business of building homes and its whole effort is expended in getting the maximum number of private homes on the market.

However, the current shortages of such essential raw materials as lumber, plywood, gypsum board, nails, hardware, and plumbing equipment have prevented the industry from operating at capacity. Only about thirty thousand prefabricated homes were produced during the first nine months of 1946 as compared with an industry capacity of many times that amount. Thus, until raw materials are available, prefabricators will not be in a position to apply the speed of their processes to the production of large quantities of houses.

Flexibility. The house of ordinary construction, once it is completed, is wholly inflexible in its plan. To put in new windows or to change the location of a door means cutting into the wall of the house, removing studding, putting in new frames and then replastering and re-siding the area. Such a procedure involves considerable time, expense and inconvenience. The panel type prefabricated house, however, offers a flexibility unique in building. If, after having lived in your prefabricated home a few months or many years, you decide that a row of windows on the south side of your living room is what you want, all you will have to do is to arrange with your local dealer for a "painless" alteration. His workmen can substitute or rearrange window or door panels in a matter of a few hours without waste or dirt or inconvenience.

Problems Which Confront Prefabrication

Any fair appraisal of the prefabrication movement, its products and its prospects requires consideration of the shortcomings and of the problems with which prefabrication is faced. Some of these problems—standardization, distribution and transportation—arise from within the prefabrication movement and must be worked out by the industry itself if it is to succeed and prosper. Others, however, are external and reflect the opposition of the vested interests who see prefabrication as a challenge to their own position in the housing field. In some instances these negative factors may outweigh the advantages of prefabrication and make it inconvenient or undesirable to purchase a mass production house. The prospective buyer should always assay the problems involved before he signs on the dotted line.

Opposition of the Building Industry. Prefabrication has been confronted not only by apathy, but by actual hostility on the part of the traditional building system. Real estate and financial interests, apprehensive as to the effect of cheaper and better prefabricated houses on old, overpriced, overmortgaged ones, have refused loans and other assistance in connection with mass produced houses. Contractors and building trades unions, fearing that factory construction will supplant many of their jobs, have refused to erect prefabricated houses, or to connect the plumbing, gas or electricity, or have exacted exorbitant "work permit" charges which raised the cost of the houses. Jurisdictional disputes between C.I.O. unions in prefabrication factories and the A. F. of L. building trades unions present further areas of difficulty.

Fortunately, the opposition of these various groups and the attending difficulties are not widespread. For the most part they are confined to our larger urban centers. Nevertheless, any one planning to acquire a prefabricated house should ascertain whether these conditions exist in his community. If they do, the purchaser would

be wise to arrange with the prefabricator for the latter to assume the responsibility for erecting the house and putting it in readiness for occupancy. Many companies maintain their own construction crews for this purpose.

Antiquated Building Codes. The building ordinances in many of our urban centers are hopelessly out of date and in many respects not adapted to modern construction methods. Some of these codes require the use of old-fashioned materials while excluding the use of newer, more desirable materials. Others fix minimum dimensions for floor joists, roof rafters and wall studs. When originally adopted, many years ago, wood was the only material employed for residential framework and these provisions may have afforded some protection against "jerry-built" houses. But today if a prefabricator who uses steel or laminated wood for structural members were to abide by some of the dimensions designated, he could support a skyscraper on the framework of his prefabricated house.

Furthermore, building codes have been notorious footballs for politicians and sometimes are filled with unreasonable restrictions and featherbedding practices dictated by shrewd lobbyists or influential labor groups. As a result, the widespread use of prefabrication is seriously handicapped because in a great many of the larger cities, prefabricated construction is either not permitted or made extremely difficult.

The United States Department of Commerce is aware of these conditions and is now attempting to work out a uniform code which can be used throughout the nation. Until building codes are modernized, however, urban dwellers will find it difficult, if not impossible, to take advantage of prefabricated homes and the entire prefabrication industry will suffer from being excluded from the large metropolitan markets.

Transportation Costs. If you chance to

live in Montana or Saskatchewan, you will probably lose your enthusiasm for prefabrication when you see the substantial item in the price of the house marked "Transportation Costs." The pre-cut house, because of the rudimentary nature of the prefabrication involved, can be shipped for long distances, but most other types of mass produced houses have definite limits as to the distance which they can be economically transported. The most desirable way to ship prefabricated houses is by truck trailer which can be power loaded at the factory and driven directly to the site. The truck can be detached and the house constructed from the trailer while the truck is making other deliveries with alternative trailers. It has been suggested that 300 miles is the maximum shipping radius for this method of transportation. Ultimately the prefabrication industry will become decentralized, factories will be strategically located within easy reach of a large percentage of our population and shipping charge will amount to no more than \$50 or \$75. At the present, however, it is necessary to ship hundreds of miles to secure the advantages of prefabrication in some parts of the country and where considerable distances are involved, the prospective purchaser should weigh the additional expense against the benefits obtained.

Standardization. When we buy automobiles, refrigerators or radios, we accept products which are substantially identical to those purchased by our next door neighbor, our friends and others in the same community. As to these and countless

other products, the public has been persuaded that standardization in design is desirable, or at least acceptable, in order to obtain benefits of mass production. This is not yet the case in the housing field. Our homes, like ladies' hats, must express the owner's individuality and taste if not distinction and style. Many of the early prefabricators did not recognize this fact, and discovered that their standardized product was not marketable, despite careful design and engineering and sound construction. The prefabricator of today has varied his bill of fare. Scores of basic house plans are now available and the appearance of each of these can be varied by changes in corner quoins, the trim, the type of doors and windows, the shutters and in numerous other ways. One can have an attached garage, a detached garage or no garage. Inside these houses alternative locations for closets, kitchen appliances, etc. afford further variety. Communities already exist which are made up entirely of houses produced by a single prefabricator without the drab monotony of standardization. Having said all this, the fact remains that most types of prefabrication do not afford the individuality or variety available in tailor-made houses. Those who want to plan their homes exactly as they choose, without regard for basic plans or existing designs, and are able to afford the extra expense such individual planning entails, will probably continue to look to the traditional building trade for their homes in the future.

Merchandising ~ The Final Hurdle

It has been noted that one of the problems which confronted the prefabrication industry in the 1930's was that of distributing and erecting the houses which it produced. Most of the other problems of that era — engineering, designing and factory production—have now been resolved, but

the problem of merchandising remains a serious one. Houses are the largest commodity for which mass distribution has been attempted. They cannot be sold over the counter as can mass produced foods, clothing and household articles, nor driven away from the factory like an automobile

or truck. Before they are ready for use the site must be prepared, foundations laid, the houses erected and the utilities installed and connected. Thus more is required for adequate merchandising of houses than for other products. Prefabricators are attempting to meet this need by a variety of distribution methods.

I. *Direct to Customer.* The pre-cut type house, which presents only a rudimentary form of prefabrication, has always been sold by mail, and the companies employing this method will, for the most part, continue to sell in this manner. Prefabricators using other construction methods are also selling direct to the consumer by means of mail order, salesmen or factory showrooms where the area served is small and erection can be accomplished by building crews going out from the factory.

II. *Real Estate Developments.* Some prefabricators confine their selling to builders of real estate developments in which a single entrepreneur acquires the land, subdivides it, purchases and erects the houses and then sells each separate house and lot.

III. *Department Store Agencies.* Perhaps the most widely publicized distributors of mass produced houses have been some of the large city department stores. A few of these stores have undertaken to assist the buyer in selecting a suitable site for his home, assume the responsibility for erecting the house and arrange the financing. More often, however, these stores merely display the houses so that a prospective buyer may examine the materials and construction methods and observe the appearance and arrangement of the houses when set up and furnished.

IV. *Local Representatives.* The majority of prefabricators are attempting to obtain local sales and service organizations similar to those employed by the automobile industry. At present local representatives may consist of a local builder or lumber dealer, but the ultimate goal is full-time agencies which would provide the services of an architect, a real estate advisor, a builder and landscaping and decorating experts.

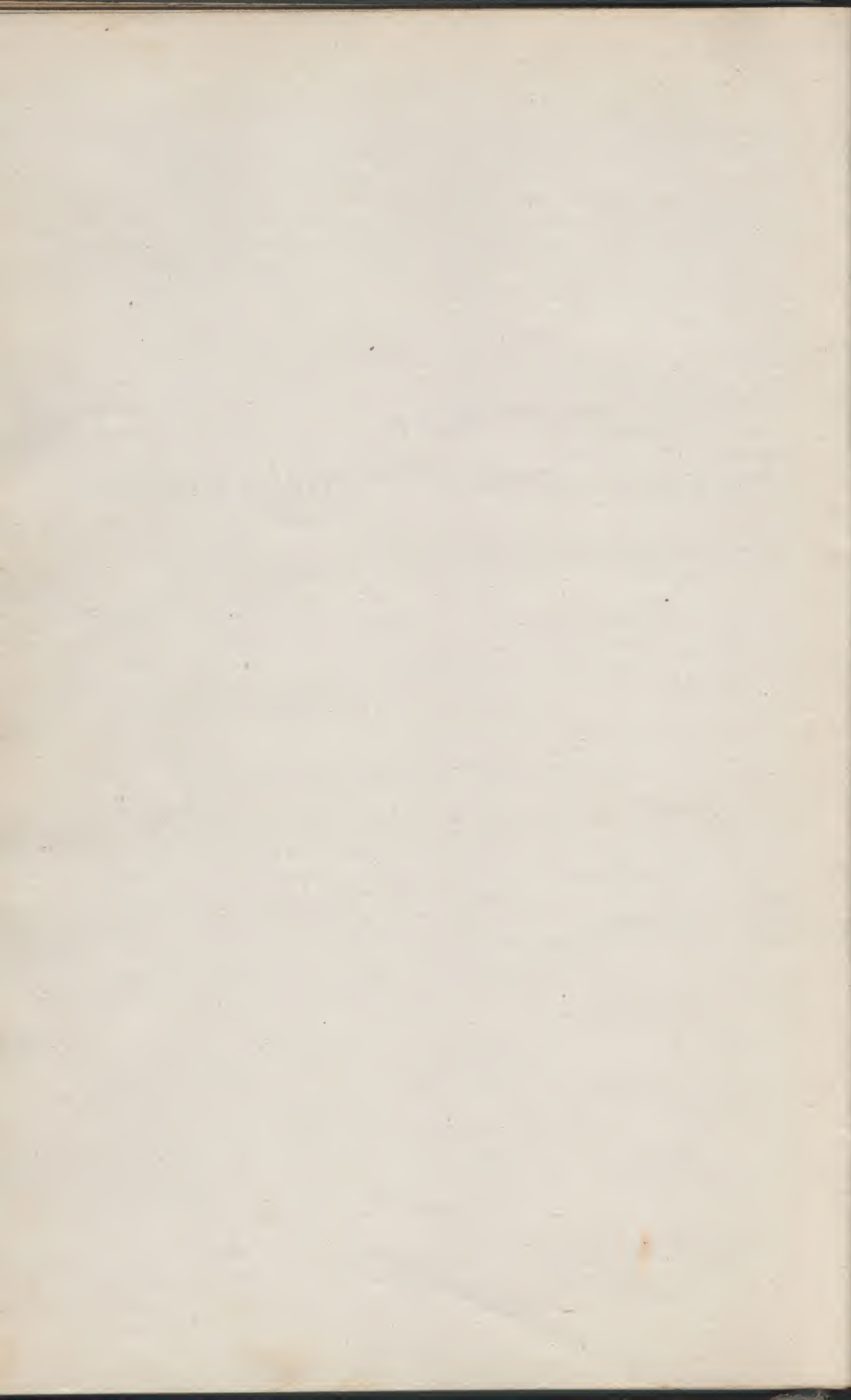
Prefabricators and Their Houses

Having considered the prefabrication industry as a whole—its origins and history, the diverse types of construction of which it is composed, the advantages it offers and the problems confronting it—one must turn to the prefabricators who make up this industry and the houses they produce. The remainder of this book is devoted to

an appraisal of the homes manufactured by some twenty-one leading prefabricators. More than a hundred pictures and floor plans of representative houses are shown and an analysis is made of the prices, methods of distribution and the materials and furnishings employed by each company.

Part II

PREFABRICATORS AND THEIR HOUSES



AMERICAN HOMES



Rodney McCay Morgan

Produced by
AMERICAN HOUSES, INC.

570 Lexington Avenue
New York 22, New York



Rodney McCay Morgan

Above: Full two story home with combination brick veneer and bevel siding exterior constructed at Portsmouth, Virginia.

Below: Attractive story and a half house with breezeway porch and garage which is well suited to its sloping site at Darien, Connecticut.

Rodney McCay Morgan



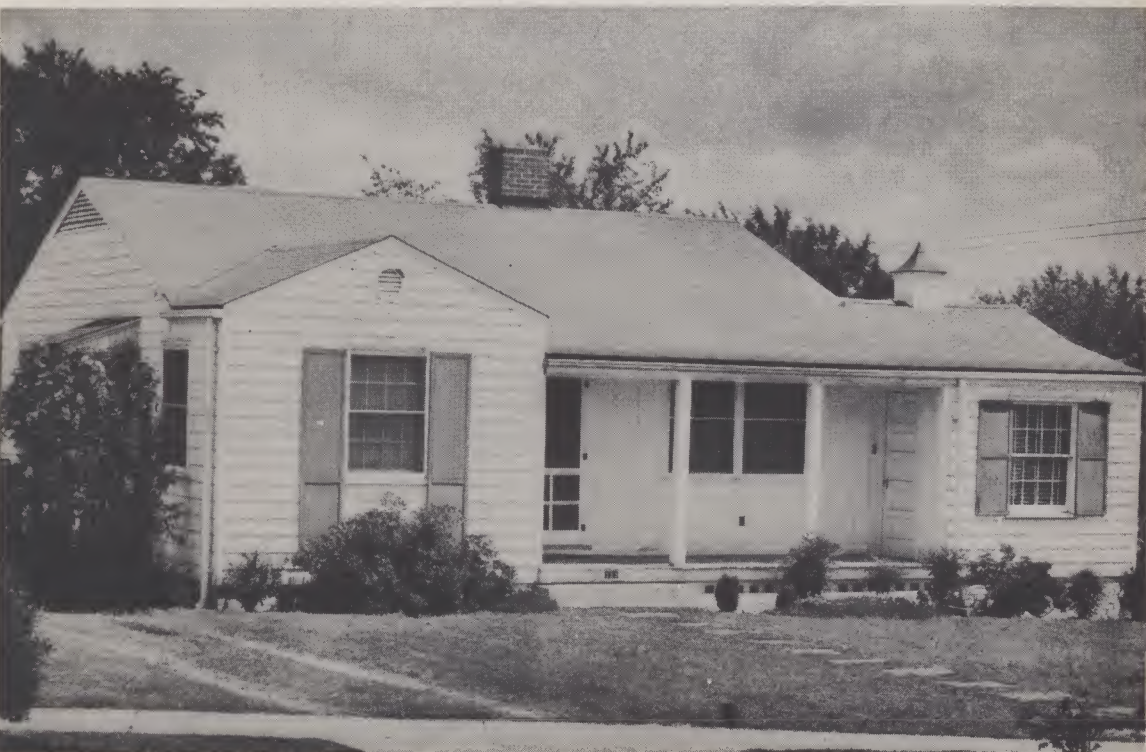


Rodney McCay Morgan

Above: Cape Cod type home with combination siding and shingle side wall, dormer windows, and attached garage built at Stamford, Connecticut.

Below: Gently sloping roofs and large porch give this home at Macon, Georgia, traditional southern atmosphere.

Rodney McCay Morgan



Facts and Figures About American Houses

AMERICAN HOUSES, INC., was organized in 1932 by architect Robert W. McLaughlin. Its first houses, which were of steel panel construction and modern in design, were not readily accepted by the buying public and in 1936 the company changed to traditional designs and wood construction. Since that time the company has rapidly expanded its business, and, by the acquisition of new plants and affiliation with other companies, has created a nationwide organization.

Unique Method of Operation

The men who direct the affairs of American Houses, Inc. view prefabrication in a somewhat different light than many in the industry. They feel that the proper function of prefabrication is to serve as a kind of "refining operation" between the suppliers of the raw materials and the contractor at the site. This new link in the chain of construction assembles the multitude of raw materials which go into the construction of a house; performs certain cutting, fitting, and assembling operations which can be done more economically in a plant than at the site; and then passes the processed materials on to the contractor. In this manner the opposition of the traditional construction industry is in large measure avoided, since the prefabricator serves the building contractor rather than competes with him.

You Deal With a Local Builder

Since American Houses sells its product only through contractors, you will be working at all times with a builder in your own community. Local facilities are used, and local architects, carpenters, plumbers, electricians, and others are employed just as in conventional construction. You obtain the machine accuracy and speed of construction with respect to the basic parts of your house which prefabrication affords together with the flexibility of exterior wall surfaces, roofing material, architectural detail, colors, composition, and arrangement provided by the local contractor who is in full charge of these matters.

American Houses can advise you whether there is a contractor in your area who is constructing homes with its materials.

Number of Models

American Houses offers no set number of house designs. Its own architects working alone or in collaboration with architects employed for various projects have designed scores of houses from which to select. These homes are one, one and a half, and two story models in both single and multiple family units. Furthermore, an architect can be employed to draw up new and different plans, combining the 4 feet by 8 feet prefabricated modular

sections in any manner desired. Thus whole communities have been constructed of houses prefabricated by American without any evidence of monotonous similarity.

Labor and Materials Furnished by American Houses

The company supplies all the carpentry materials, cut with factory precision and fabricated into panels to form the superstructure of your home. Wall panels are 4 feet by 8 feet with plywood sheathing over 2 by 4 framing. Insulation is installed in these panels at the factory, but lath and plaster or wallboarding is supplied in standard form to be applied at the site in the conventional manner. Floor panels measure 4 feet by half the width of the house. The joist sizes are determined by the length of this span. Subflooring of $\frac{3}{8}$ inch plywood is factory applied, but finish oak flooring and floor insulation are sent along to be applied when the house is erected. Roof rafters, sheathing, and ceiling joists are pre-cut to exact size and shape for quick and accurate assembly at the site. Doors are factory fitted complete with solid brass hardware, hung in jambs and installed as units, primed and ready for erection as a section. Interior doors are of the two panel design; exterior doors may be either the six panel Colonial style or one panel with nine small window lights. Windows are factory fitted complete with brass hardware and balances installed, hung in panels ready for erection as a wall unit.

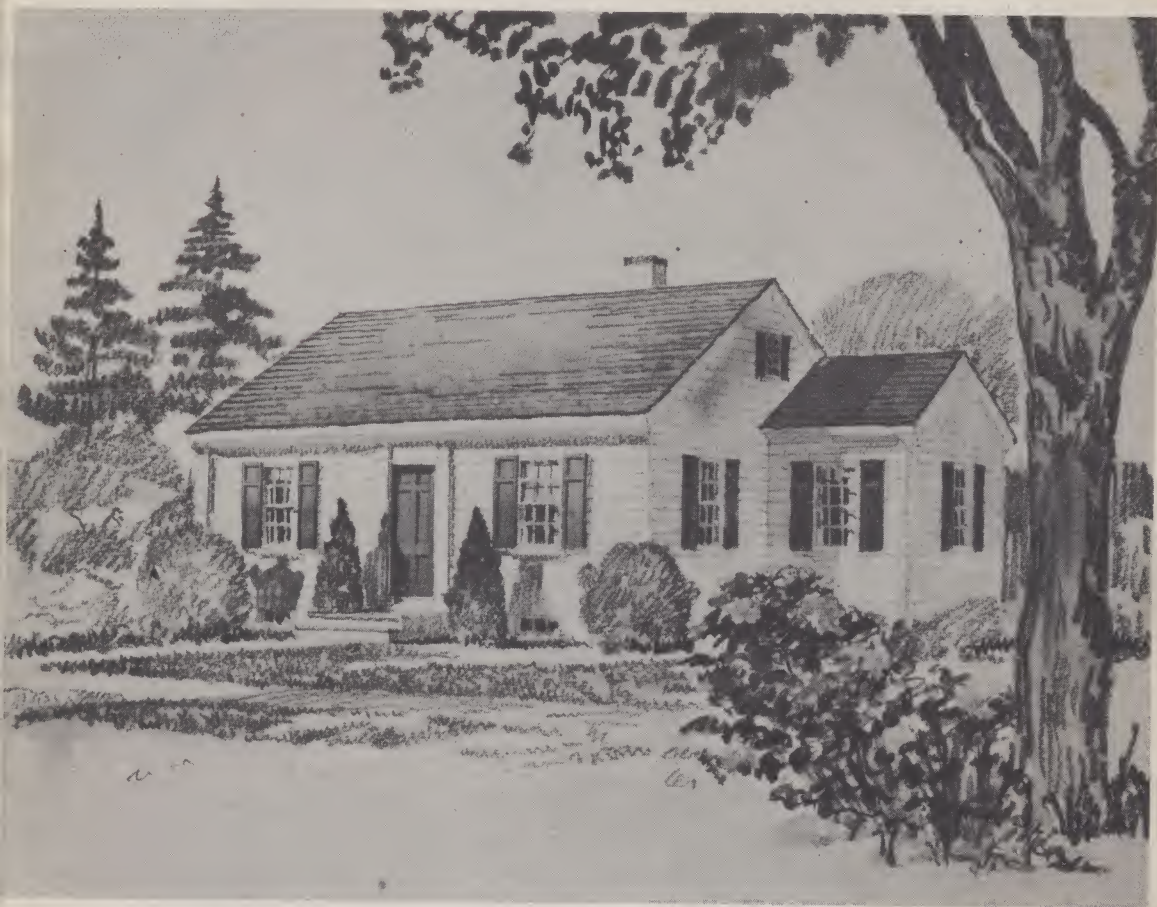
In addition to these pre-cut or pre-assembled structural items, American supplies your contractor with exterior siding to be applied after the superstructure is raised, asphalt or slate roof shingles, interior finish of dry wall or lath and plaster, pre-finished oak floors, linoleum for kitchen and bath, and all standard interior and exterior trim. The company supplies such equipment as kitchen sink and cabinets, medicine cabinets, and other bathroom accessories, a Coleman hot water heater, and a Coleman forced-air or gravity warm air furnace, either gas or oil fired.

With these various materials, American supplies all working blueprints necessary for erection, with the exception of those for the plumbing. The contractor receives the assistance of company engineers and architects through each phase of planning a job.

Prices

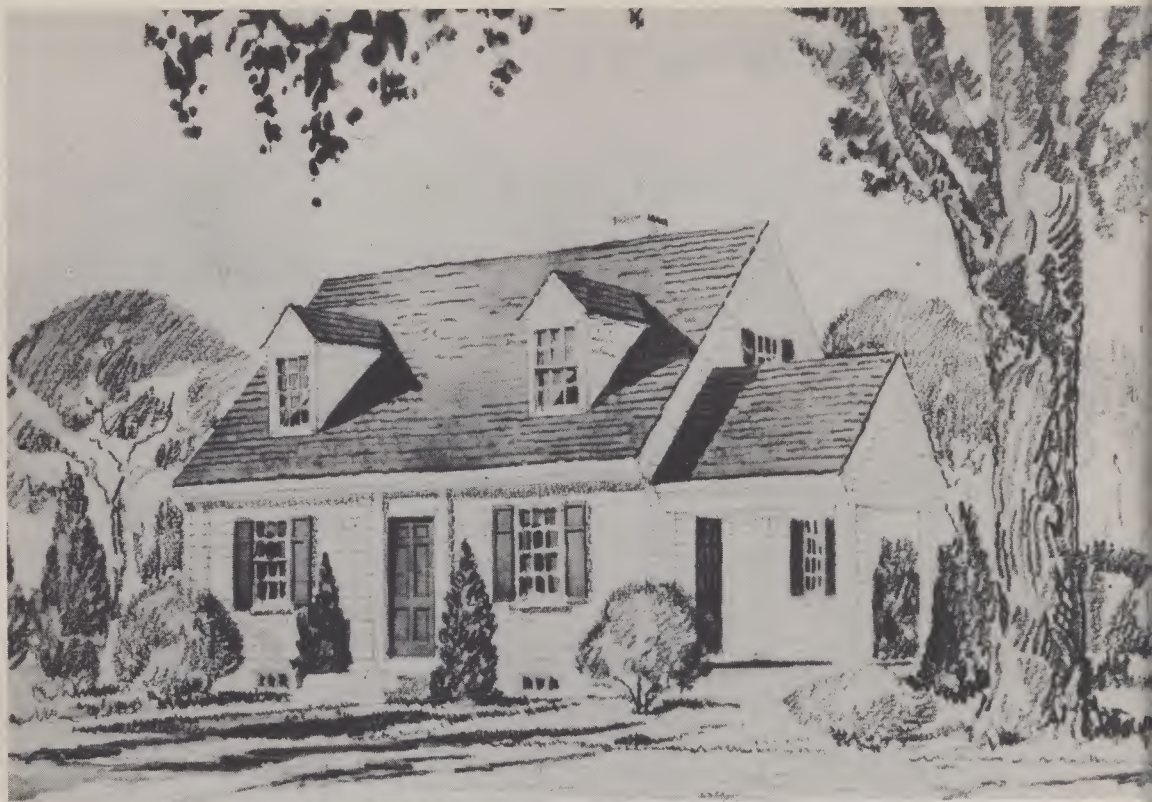
Since the homes are usually specially designed for each particular project, the prices vary according to the size and design. The price range today conforms to current popular levels, and ranges from \$3,500 to \$20,000.

ANCHORAGE HOMES

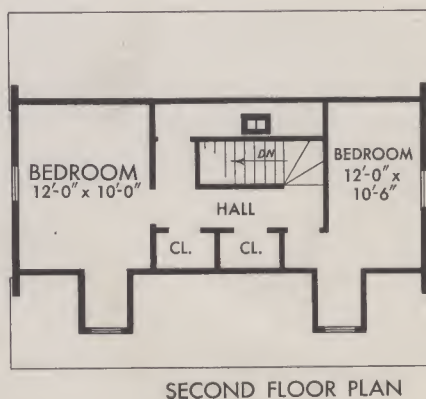
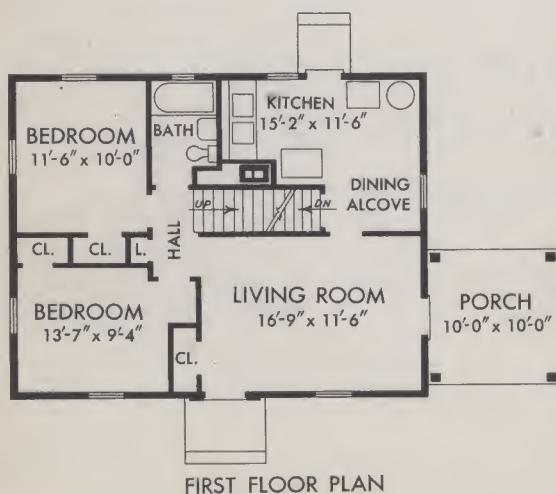


Produced by
ANCHORAGE HOMES, INC.

Westfield, Massachusetts

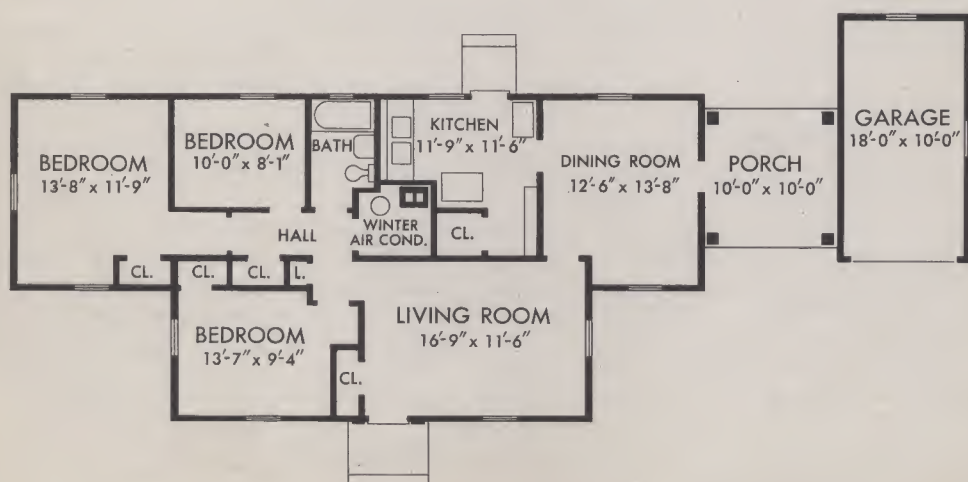


THE "BREWSTER" is a compactly planned house, which, despite its small overall dimensions, provides four cross-ventilated bedrooms. The side porch, opening off of the living room, gives additional width to the house and relieves its square appearance. A basement provides space for heating and laundry equipment and for storage purposes.





THE "HYANNIS" PROVIDES THREE bedrooms, a living room, dining room, kitchen, and bath, all on one floor. A utility room, containing the winter air conditioning unit and the hot water heater, makes a basement unnecessary for this purpose. The addition of a breezeway porch and a one-car garage to the basic plan, which is already quite wide, gives an overall appearance reminiscent of the old-time rambling house.



Facts and Figures About Anchorage Homes

ANCHORAGE HOMES, INC., of Westfield, Massachusetts, has combined the traditions of early Colonial American design with modern factory production in the variety of homes which it produces. This company is an outgrowth and expansion of the Holt-Fairchild Co., which has, in recent years, prefabricated and constructed several entire communities in the New England area. Anchorage has acquired all the patents, machinery, and equipment of Holt-Fairchild, and through the public sale of stock has financed the construction of a large modern factory at Westfield.

Design

Anchorage offers one of the largest assortment of houses available from any prefabricator. You may choose from some forty-eight designs ranging from the "Manomet" with one bedroom, living room, dining alcove, kitchen, and bath to the "Orleans" with four bedrooms (two upstairs and two down), two baths, living room, library, full dining room, kitchen, breezeway porch, garage, and basement. Although these homes are modern with respect to equipment and livability, their exteriors are all of the traditional Cape Cod Colonial design and appearance which has long been typical of the New England countryside.

Construction

Wall panels are of full room size, and are assembled by a special method of coupling which gives no evidence either on the exterior or interior wall of the panel type of construction. The interior wall and ceiling surfaces are made of five-ply laminated Kraft Boards which are attached to the frame at the plant. Perfection cedar shingles in Colonial white are installed over the entire exterior surface of the wall panels, except for the joints between panels which are shingled at the site. All doors and windows are hung and installed in the respective wall panels—completely trimmed, glazed, and weatherstripped—before leaving the factory. The floor panels are finished with fine oak flooring in all rooms except kitchen and bath where linoleum is laid.

Other Materials Supplied

In addition to the basic shell of the house, Anchorage supplies most of the equipment and fixtures you will need in a home. The kitchen is equipped with two large cabinets, a built-in sink and draining tray and a gas or electric range as you choose. The bathroom comes fully equipped with a built-in tub and shower, wall lavatory, and a flush toilet. A twenty gallon hot water heater, operated either by gas or by electricity is located

in the basement or the first floor utility room. An oil burning, thermostatic controlled warm air heater circulates filtered and humidified air to all rooms. The oil tank for this heater is buried under the back lawn. All the rooms of each house are equipped with floor plugs for indirect lighting with the exception of the dining room, kitchen, bath, and utility rooms where overhead lights are provided. A Colonial lantern is supplied for the front entrance.

For the house roof Anchorage furnishes fire-resistant 210 pound asphalt slate shingles in red, green, or black. All windows come with shutters in matching colors. All windows and doors are supplied with screens and the windows with shades. The front entrance has a 1¾ inch thick, six panel Colonial door with ornamental frame. The kitchen door has glass above a single bottom panel. The exterior doors are furnished with cylinder locks with master keys, brass knobs, and three hinges. Interior doors are furnished with tubular latches, black knobs, and two hinges. Kitchen cabinet hardware is of chromium.

Distribution and Erection

Anchorage plans to serve the nine northeastern states within a 250 mile radius of Westfield. Within this area it is organizing a chain of dealers who will represent the company in selling, erecting, and servicing its homes. Most of these representatives are selected because of their previous connection with the building or real estate business and they receive special training from Anchorage, so that they are in a position to be of considerable assistance to you in dealing with the problems of home building. As soon as your order for an Anchorage house is sent to the factory by the dealer, his crews begin the excavation for the basement or foundation called for by the house plan. Meantime at the factory all the necessary panels, materials, equipment, and fixtures are assembled, and as soon as the dealer has advised that the foundation is complete, the entire "package" is sent out by truck trailer from the factory to the site. Within a day or two the dealer's crew has completed the closure. Another week is required to install the plumbing, wiring and heating systems and give the entire house a final coat of paint.

Prices

Because of the uncertainties in the present-day lumber and materials market, firm prices have not yet been established on Anchorage homes, but the projected price range is between \$3,600 for the lowest price house to \$7,600 for the most expensive home. This is the price of the completed home with utilities and fixtures installed.

FORD FACTORY-BUILT HOMES

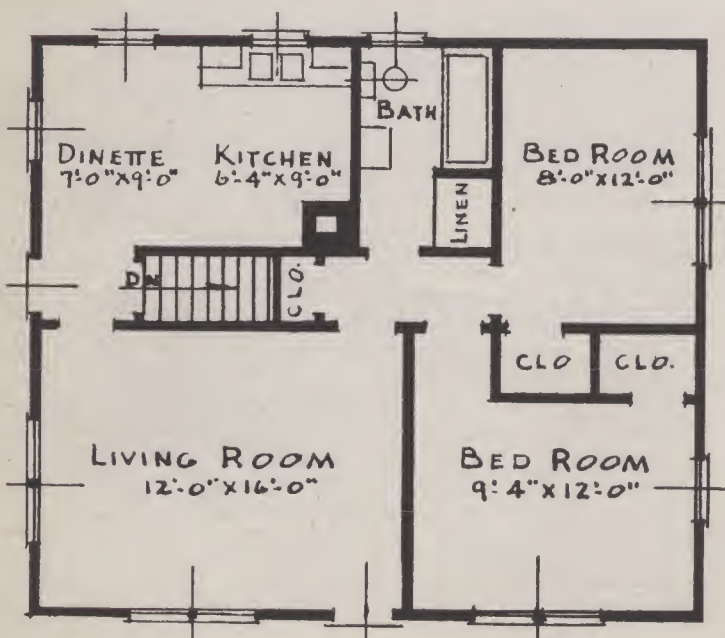


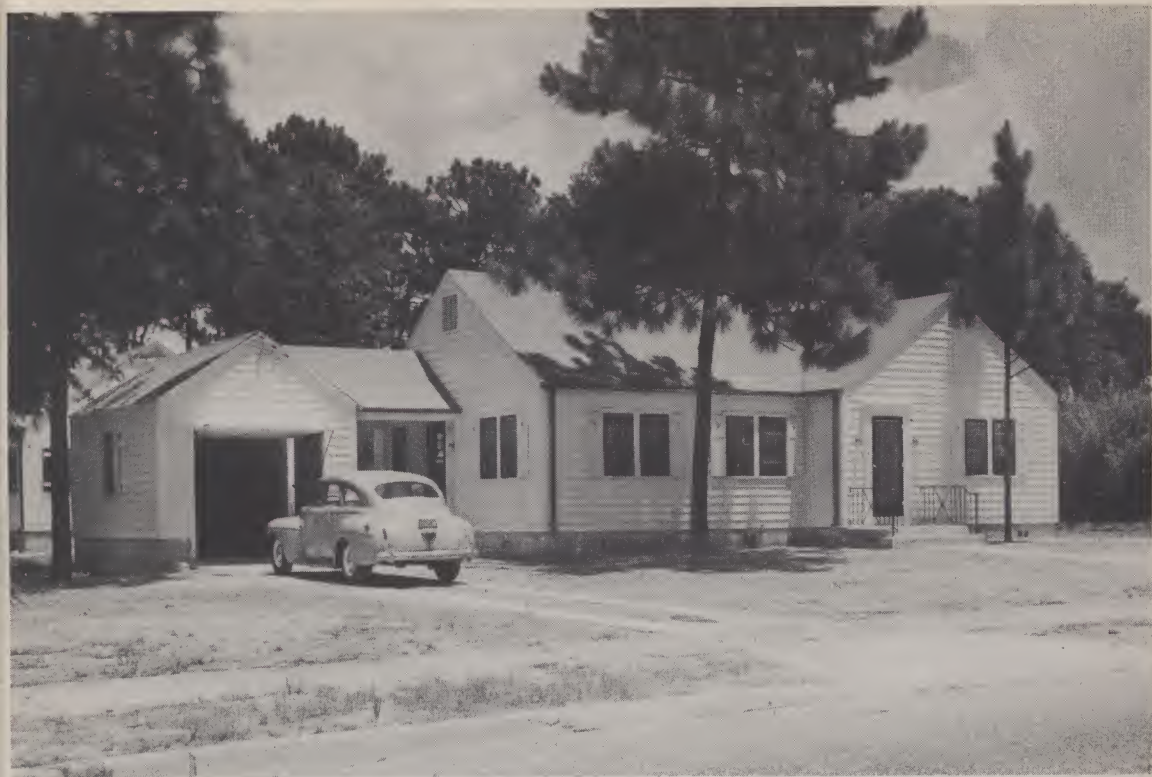
Produced by
FACTORY BUILT HOMES, INC.

McDonough, New York

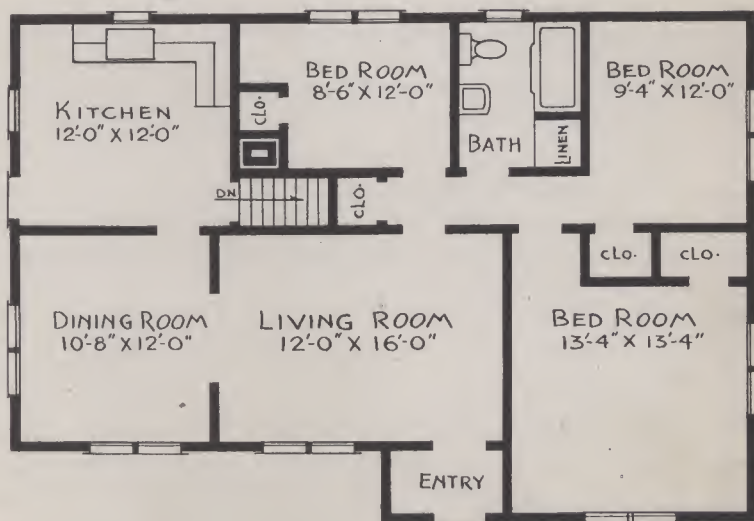


THIS TWO BEDROOM HOME, located at Sidney, New York, represents the smallest home designed and produced by the Factory Built Company. Windows can be added in the gable ends in order to make possible the addition of extra bedrooms in the attic. It will be noted that the kitchen and bath are located adjacent to each other, an important factor in reducing the cost of plumbing installation.





THIS THREE BEDROOM HOUSE, located at Palatka, Florida, departs from the more conventional square or rectangular shaped house, having a projecting wing and front gable to give it added attractiveness. The wide archway between the living room and dining room provides a greater feeling of spaciousness without detracting from the individuality of either room. The breezeway and garage, which have been added to the basic house, can be made a part of most Ford homes.



Facts and Figures About Ford Factory-Built Homes

THE Ford Factory-Built system of prefabrication had its inception in 1935, when Ivon R. Ford, the head of a New York lumber company, developed his own system of factory fabrication. Houses constructed according to his system were extensively tested at the College of Engineering of Cornell University, and improvements in design and construction have been made from time to time.

Number of Models

Twenty-four different models of Ford homes are manufactured and offered for sale. Most of these homes provide two bedrooms and are similar in their basic floor plan. Considerable variation in exterior appearance is achieved, however, by the use of several different porches which can be attached at the front or sides, breezeways, attached or semiattached garages, shutters, window boxes, and other architectural treatment. These homes can be constructed with or without a basement as you may desire.

Materials and Construction

The panel system of prefabrication is employed throughout in the construction of Ford homes. Wall panels consist of hemlock, pine, or fir framing to which heavy plywood sheathing and wall-board are both glued and nailed. Cotton blanket insulation and the electrical wiring system are built into the panels and the interior trim is entirely installed. Window and door frames together with the double hung windows and finished doors are also built into the panels at the factory.

Thus the walls are completely finished at the plant except that the exterior siding is applied after the house is erected at the site. In this way there is no sign of the joints where the panels come together. The roof panels are similarly completed save for the application of asphalt shingles after the panels have been erected. The floor is built in sections up to 8 feet wide and 24 feet long, and the prefinished hardwood flooring is nailed in place, sanded and finished at the factory so that nothing needs to be done to the floor after installation except to give it a final coat of wax.

The company ordinarily supplies such items as window and door screens and window blinds. The wiring (Romex) is supplied and built into the wall units. Bathroom fixtures such as bathtub, toilet, lavatory and medicine cabinet are also furnished.

Distribution

Although Ford's company continues to manufacture homes at its McDonough, N. Y. plant, its primary function is to conduct further experi-

mentation in the field of prefabrication in an effort to secure better materials and equipment and to improve the methods of construction. It has licensed several other companies to carry on the bulk of the manufacture and distribution of homes produced by the Ford system. There are at present nine different plants licensed to manufacture and sell these houses. These companies are:

Hilz Homes Co., 801 Railroad Street,
Toronto Ohio

L. H. Riedel Lumber Co., Marlette, Michigan
Barden & Robeson Corp., Middleport, New York

J. W. Campbell, Inc., Palatka, Florida

R. C. Bennett Box Co., Clinton, Iowa

Lincoln Lumber Co., 2201 East 14th Street,
Oakland, California

Home Builders Corp., Atlanta, Georgia

Preco Corp., P.O. Box 657,
Bellingham, Washington

Hudson Supply & Equipment Corp.,
1727 Pennsylvania Ave., N.W.,
Washington 6, D. C.

Each licensee operates his business as an independent unit and establishes his own prices according to local labor, material and transportation costs. For the most part these licensees confine their sales to an area within a 100 mile radius of their plant, and deliver the materials to the site by truck trailer.

Erection

Each licensee appoints within the area it serves a series of dealers who sell the homes and undertake the responsibility of the excavating for basement or foundation and erecting the house. Since the company does not furnish such items as paint, varnish, wallpaper, refrigerator or range, the local dealer is responsible for the purchase and application or installation of these items. Under normal conditions a house can be completed, transported, and erected within a month after the order is executed, but under present conditions of extended demand and material shortages, the company and its licensees are running several weeks behind normal schedules. If you live within 100 miles of any of the above named licensees, you can correspond directly with the company in your area concerning the purchase of a Ford home.

Prices

Ford homes range in price from \$5,000 to \$8,500 completely erected and ready for occupancy. These prices do not include a fireplace, however, and if you want one in your Ford house, from \$200 to \$300 must be added.

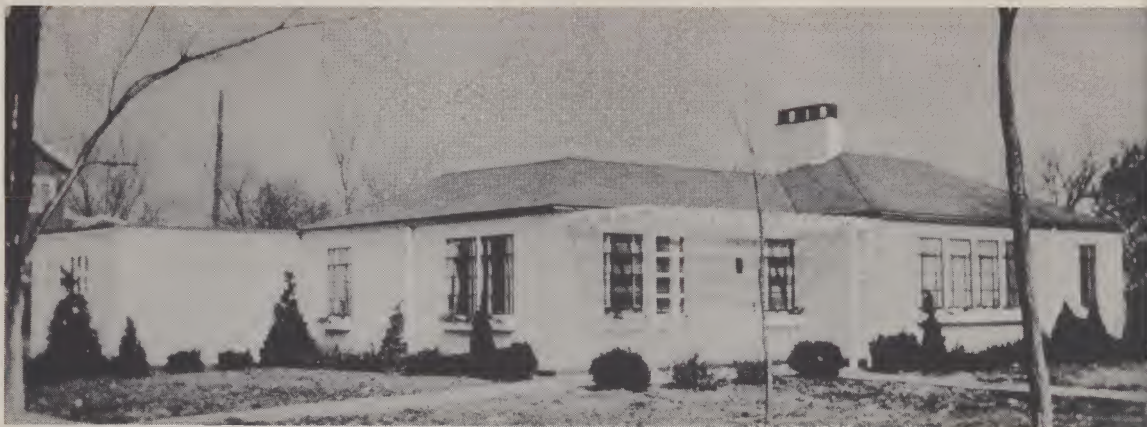
GENERAL HOMES



Produced by
GENERAL HOUSES, INC.

Chicago Daily News Building

Chicago 4, Illinois



Above: A large steel panel house with combination hipped and flat roof, constructed at Detroit, Michigan, in 1936.

Below: An attractive modern home which is well suited to its sloping site at Ft. Wayne, Ind. Constructed in 1936.





Above: Home prefabricated for Miss Ruth Page, noted dancer, in 1932 and erected on a high lake bluff in Winnetka, Illinois.

Below: One of the 238 houses in the "Fairway Project" near Washington, D. C., constructed in 1942.

Rodney McCay Morgan



Facts and Figures About General Houses

FOUNDED in 1920, General Houses has experienced, during the past two decades, much of the metamorphosis and the growing pains common to the prefabrication industry as a whole. Its earlier years were devoted to research and developmental work, and it was not until 1932 that its first houses were offered for sale. The initial product consisted of frameless interchangeable steel panel homes of "modern" design. Exhibit houses were displayed at the Century of Progress Exposition in 1933 and 1934, and a substantial number of houses were sold throughout the United States and a limited number were shipped abroad. The experiences of this earlier period indicated, however, that the use of modern design and materials not normally employed in house construction made it difficult to obtain satisfactory mortgage loans, a prime requisite in the sale of most homes. General Houses accordingly undertook intensive development work to perfect various construction methods employing wood as the basic element, and also providing a sloping roof of conventional architectural appearance. In the war emergency the company was called upon to build five large housing projects, four in the East and one in California.

Number of Models

General Houses offers some 30 different models of houses of both steel and wood construction. It is currently featuring a four room house of traditional Cape Cod design which employs wood framed panels and measures 32'-9" by 25' in its overall dimensions. This basic plan provides a large 12' x 20' living room, two good-sized bedrooms, bath, utility room, or basement, and efficient kitchen. The house is planned for the addition of two bedrooms and a bath on the second floor, either at the time of erection or at a later date should the owner desire. Various exterior treatments can be used, and prefabricated porches, breezeways, and garages can be added, making possible a great variety in appearance.

Materials and Construction

GH homes are constructed of panels which are highly standardized and made interchangeable to the maximum extent possible. Exterior wood framed panels are complete with prefinished full 3/4 inch thick, solid wood V-jointed tongue and groove vertical exterior finish, building paper, blanket insulation, aluminum foil insulation and vapor seal, and prefinished gypsum board interior finish. Framing members are standard 2" x 4" size on 16 inch centers, with all joints mortised and members let in. Gasketed exterior joints are held by special splines of steel. Floor panels come com-

plete with joists, building paper, 2 inch thick blanket insulation, vapor seal paper, and quality prefinished oak flooring. Ceiling panels are complete with prefinished gypsum board, aluminum foil insulation and vapor seal, 2 inch thick blanket insulation, and building paper. All joints are mortised and panel edges are joined and securely held together by steel splines. The ceiling panels in all houses are designed to take full loads for second-story rooms. Roof panels are constructed of 2" x 6" rafters covered with a finished surface ready for the application of asphalt shingles or any alternate standard roofing. Windows are double hung, glazed, weatherstripped, and complete with screens; doors are the flush panel type, ready hung, and complete with hardware.

Panels for steel homes of the type illustrated on the preceding pages are of 14 gauge, rust-resisting, copper-bearing steel with interior surfaces of celotex or sheet rock. From 2 to 3 1/2 inches of insulating material is interposed between the outer and the inner wall finishes. Floors are constructed of either wood or steel subflooring on steel joists with ordinary hardwood finish flooring; roofs are wood or steel sheathing on steel rafters covered with built-up roofing material.

Distribution

During the company's earlier history its dealers were largely chosen from outside the home building field in the belief that with a new product of this type a more successful job of retail merchandising could be accomplished. This method of distribution proved inadequate, however, and many of the early difficulties resulted from the lack of practical home building knowledge and experience on the part of the dealers selected. Consequently, General Houses today offers its prefabricated houses to the public through lumber and material dealers exclusively. The company has established a large and entrenched dealer organization of 238 franchised outlets, largely concentrated in the heavily populated eastern and Great Lakes states. The dealer prepares the site, provides the foundation (with or without basement as the buyer prefers), erects the house, installs the utilities, and completes the interior and exterior decoration.

Price

The dealer buys the house parts and panels at established dealer prices, and determines his own retail price in view of local costs and conditions. Prices are geared to the low and medium price fields, however, and range between \$5,000 for the basic two bedroom house design with simple exterior to about \$10,000 for the four bedroom, two bathroom house.

GREEN'S LAUREL HOMES



Produced by
GREEN LUMBER COMPANY
Laurel, Mississippi

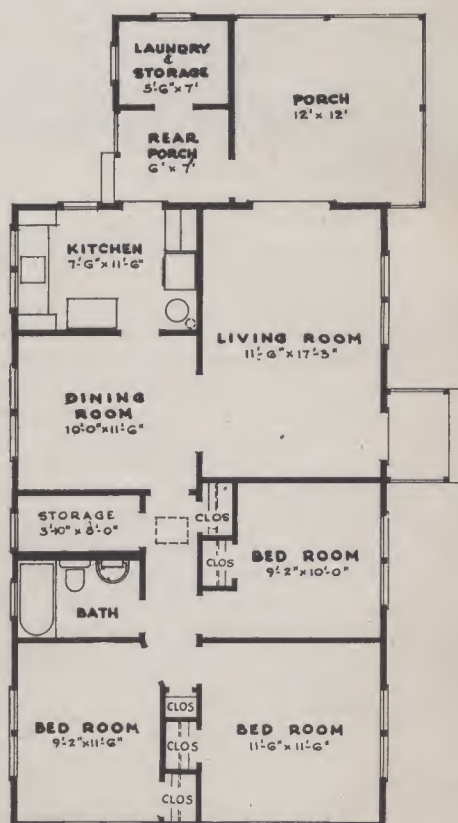


THIS SMALL HOUSE, measuring only 32 feet by 24 feet, is lifted out of the commonplace class by the attractive bay window, the latticed entryway, and the thoughtfully designed floor plan. Here is a small house, for a change, with abundant closet and storage space—four ordinary closets and two storage closets, each about 5 feet square. A small entry vestibule, which prevents the incidental caller from trekking into your living room, is another valuable feature often omitted in the less expensive homes.





HERE IS A THREE bedroom house that can be placed on a narrow 40 foot lot. The overall width of the house is only 24 feet, although it has a floor area of almost a thousand square feet. It is so oriented on the lot that the large living porch and living room windows face the rear where privacy is obtained. As in all Green homes, a great deal of storage space is provided on the ground floor. Large double windows provide abundant light and ventilation in all rooms.



Facts and Figures About Laurel Homes

THE GREEN LUMBER CO. has been engaged in the prefabricated business since 1934 when it began the production of CCC camps and similar structures. During the war it entered into the emergency housing program and produced several thousand dwelling units. With the end of hostilities it converted its plant over to the production of the larger and more attractive peacetime homes.

Number of Models Offered

Green produces seven different homes ranging from the smallest, measuring 32 feet by 24 feet and providing living room, dining alcove, kitchen, bath, two bedrooms, and five closets including two large storage closets, to the largest, measuring 52 feet by 24 feet and providing three bedrooms, bath, living room and living porch, a full-sized dining room, kitchen, rear porch, laundry and storage room, and six closets. All of these are single story houses, but company architects are busy drawing up plans for a line of story and a half homes in the Cape Cod tradition. All Green homes can be obtained with or without a basement as you prefer. It will be noted that some of these homes are especially designed to be placed lengthwise on a narrow lot, and that many have large, pleasant, screened porches so typical of the South.

Method and Area of Distribution

Because of the shortages of seasoned lumber, plywood, nails and many other essential raw materials, production of Laurel Homes is greatly below Green's plant capacity. As a result sales are being confined at present to the states within the immediate area of the Mississippi factory. When production can be increased to desired levels, the company plans to sell its homes throughout the nation.

Sales are made through local dealers and real estate developers. Thus, all of your negotiations in the purchase of a Laurel Home are with someone in your own community. This representative will help you decide upon the house which is best suited to your family needs, the size and contour of your lot, and your financial means. You will arrange with the dealer as to the style of interior decoration, the color of roof shingles and exterior paint, the type of heating equipment, and the choice of plumbing and lighting fixtures.

Under ordinary conditions the Green Company can make delivery of a house within 30 to 60 days after receipt of an order. Under present conditions the company is forced to reject a large proportion of incoming orders, so that it can continue to make prompt delivery on those orders which are

accepted. Shipment is made either by truck or rail depending upon the distance involved.

How Laurel Homes Are Constructed

Walls are of panel construction based on a 4' module. The framing consists of 2x4 studs placed 16 inches on center as in traditional building. The frame for each panel is covered on the exterior with a heavy plywood sheathing. The interior side of the frame is covered with a high grade, highly finished plywood, which may be stained and varnished, painted, or papered. Insulation is installed in the wall panels at the factory. Interior partitions differ from outer walls only in that insulation is omitted and the more highly finished interior plywood is applied to both sides of the partition frame.

Floors consist of regular wood joists covered with plywood subflooring. Over the subflooring a high grade of hardwood flooring is laid at the factory. This flooring must be finished, sanded and polished at the site after the house is erected. Linoleum is furnished for bathroom and kitchen.

Roof and ceiling panels are made of factory cut rafters and joists to which plywood sheets have been securely attached. The plywood used for the ceiling is of the same finished grade employed on interior walls. A heavier sheathing plywood is used for the roof panels, and 210 lb. asphalt shingles (in a variety of colors) are supplied by the company to be applied at the place of building.

Doors are supplied in a variety of stock designs. Windows are either four pane or sixteen pane double hung. Window and door screens are furnished by the company.

Function of the Dealer-Builder

After the order for a house is placed, but prior to the time of delivery, the local dealer must excavate the site and construct the basement or foundation with his own crews or by subcontractors employed for that purpose. When the house arrives his crew must erect the house (approximately 200 man hours being required for this purpose), apply the bevel siding and the roof shingles on the exterior and the trim and decorating on the interior, furnish and install the plumbing, heating, and electrical systems and fixtures, paint the house and perhaps take care of some of the landscaping. About a week is required for erection and probably two or three additional weeks for the installation of the utilities.

Price

Green houses range in price from \$5,000 for the two bedroom size to \$8,500 for the largest size.

GREEN'S SOLAR HOMES



Hedrich-Lessing Studio

Produced by
GREEN'S READY-BUILT HOMES

1221 Eighteenth Avenue

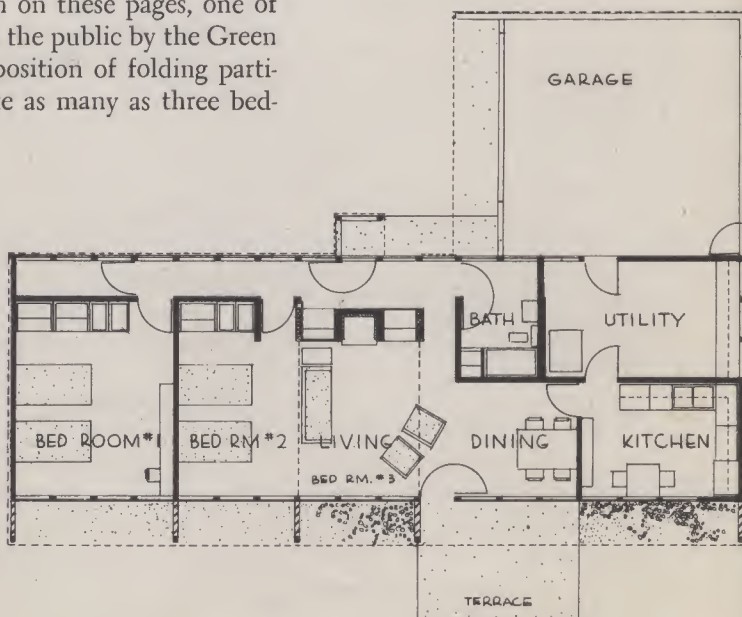
Rockford, Illinois



Hedrich-Lessing Studio

Above: The broad, uninterrupted view on the southward-facing side gives a feeling of roominess to the Solar house. Illuminating engineers explain that this thing called "glare" comes not so much from an extensive light as from a too-sharp contrast between dark and light, such as the bright patches of window area in a completely shaded room.

Below: Floor plan of house shown on these pages, one of many Solar Homes to be offered to the public by the Green Company. Dotted lines indicate position of folding partitions which may be used to create as many as three bed-rooms in this home.





Hedrich-Lessing Studio

Above: Built-in wardrobe and drawers to accommodate practically every household item. Three units shown here in bedroom of Solar Home. More can be added as desired.

Below: Kitchen is completely equipped with refrigerator, range, sink, washer and cabinets. Also contains ample space for a breakfast table and chairs.

Hedrich-Lessing Studio



Facts and Figures About Green's Ready-Built Homes

The Solar House

DESPITE the ancient admonition to those who live in glass houses, there is a decided tendency to employ ever larger areas of glass in today's homes. These large stretches of uninterrupted windows provide a broader vista of the out-of-doors, more abundant indoor daylight, and a feeling of spaciousness and depth in the rooms themselves. Furthermore, if the large window areas are placed on the south side of the house, the warm rays of the sun can be harnessed to heat the house on winter days. Until recently this principle of solar heating was embodied in only a few of the more expensive houses built by those who could afford this innovation. Then Green's Ready-Built Homes, a prefabricator of traditional style houses since the late 1930's, decided to make the solar type home available to all on a prefabricated basis. They employed architect George Fred Keck, a pioneer in this field, to design a flexible system for constructing solar houses in a variety of floor plans suitable for different sites, needs, and purses.

Number of Models

Green's now offer fourteen different models, ranging from a small one bedroom home to a four bedroom house with two baths, a large living room, dining room, kitchen, utility room, storage room and attached two-car garage. These homes provide an unusual variety both in floor plans and exterior appearance. Their flexibility as to size and shape make them adaptable to contour, size and panorama of almost any plot.

Water on the Roof

In order to help keep the house cool and pleasant during hot weather, the flat roof is prepared so that a thin sheet of water can be kept on it during summer months. Tests have shown that a water-film roof will make a house about 10° cooler inside by evaporation and reflecting the sun's rays. An automatic valve keeps the water at the proper level.

Radiant Panel Heating

Although the sun provides a substantial source of heat for the Solar house, it merely augments the special heating unit, located in the utility room, which forces warm air to circulate through the ducts in the floor tile. This radiant type of heating, although not yet widely used, promises to become more and more popular with future home owners. It eliminates unsightly radiators or registers by converting the floor into one continuous radiator. Since there is so large a radiating sur-

face, temperatures do not need to be high. The heat rises evenly from the whole floor without noise or draft.

Controlled Ventilation

Special attention has been given to the ventilation of the Solar house. Since the large Thermo-pane windows are securely sealed into place in the framework of the house and cannot be opened, screened louvers have been provided in every room. These louvers can be left open during storms without danger of the rain beating in. An Ilgo electric ventilator is provided in the kitchen.

Construction and Distribution

Green houses are built according to the panel type of prefabrication. The wall panels are faced with ¼ inch plywood on the inside and ¾ inch plywood on the outside, with Balsam Wool insulation built in. The roof is also formed into sections, with the underside, which forms the ceiling, covered with acoustical ceiling tile. The upper or roof side is covered with heavy plywood, to which the roofing material is then attached. All doors are 2'8" by 6'8" in size, and are completely installed at the factory.

These homes are distributed exclusively through dealers located within a 300 miles radius of Rockford, Illinois. The various prefabricated parts and equipment are shipped by truck from the factory to the local dealer, who is responsible for erection, installation of fixtures and equipment, and decoration.

Equipment Supplied

Green's supply all the equipment necessary for the operation of the Solar house. The bathroom is furnished with a full complement of fixtures—bathtub, toilet and lavatory—produced by Crane. The kitchen is supplied with metal cabinets by St. Charles Mfg. Co., a General Electric garbage disposal unit and refrigerator and a Roper gas range. In the utility room you will find an automatically fueled furnace by International Oil Burner Co., a hot water heater by Crane, a Servi-Soft water softener, a Bendix automatic washer and a clothes dryer produced by Chicago Dryer Co. The house is completely wired with outlets in every room and overhead fixtures in the kitchen and utility room.

Price

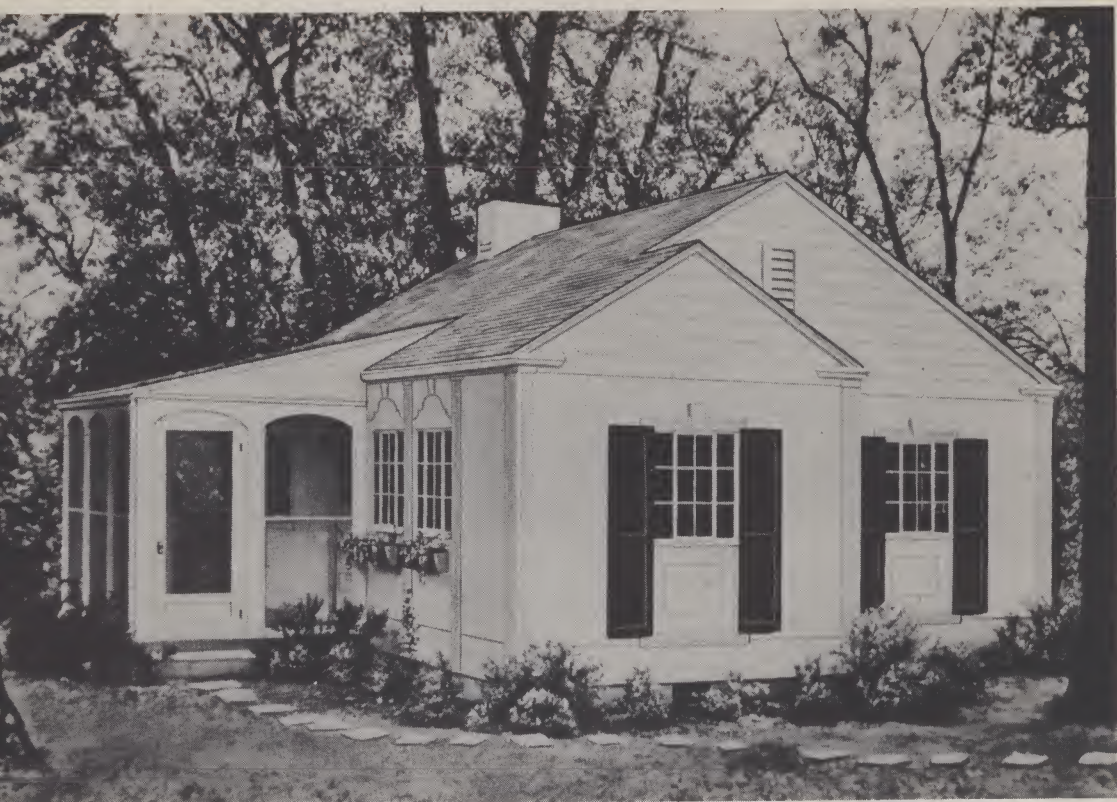
The prices of Solar Homes vary according to the size and style purchased. The house shown on the preceding pages will sell for about \$7,500 with all equipment furnished and ready for occupancy.

GUNNISON HOMES



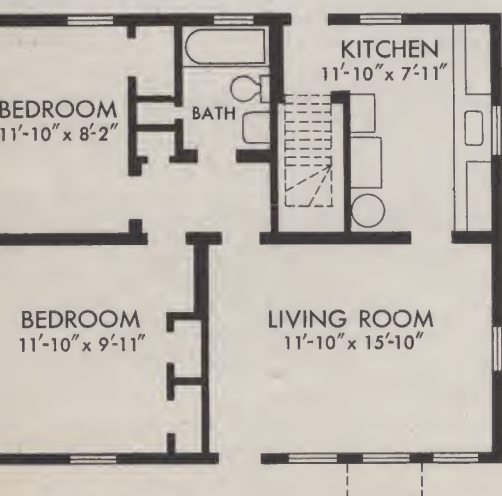
Produced by
GUNNISON HOMES, INC.

New Albany, Indiana

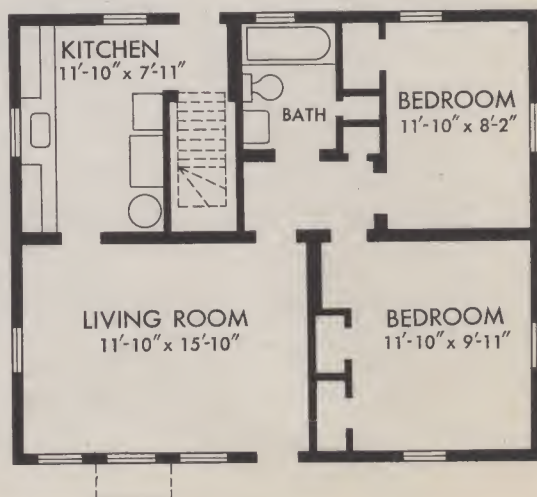


THE HOME SHOWN ABOVE is the smallest Gunnison house, measuring 28 feet by 24 feet in size. It features a basement, screened arched porch, window boxes, pilasters and plaques and long shutters as optional items. If no basement is desired, a utility room is located on the main floor in place of a basement stairway.

LEFT-HAND PLAN



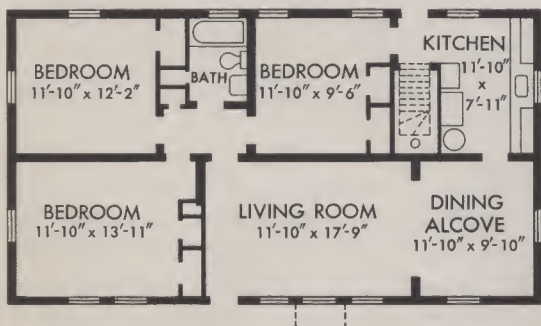
RIGHT-HAND PLAN



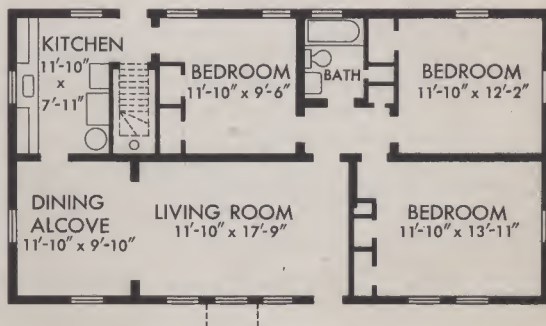


THIS SIZE 5 HOME is equipped with fireplace, arcade, garage, long shutters, entrance hood, scrolls, iron rail, window boxes and a picket fence. The dotted lines shown in the utility room of the house plan indicate position of stairs if a basement is used, in which case the utility room wall may be shifted to enlarge the kitchen or bedroom #3 by 4 feet. Gunnison plans to change the design and optional features of its homes from time to time, just as the automobile companies change models, in order to incorporate new improvements and to vary the appearance of its homes.

LEFT-HAND PLAN



RIGHT-HAND PLAN



Facts and Figures About Gunnison Homes

GUNNISON HOMES, INC., is one of the pioneers of the panel type of prefabrication. The company was organized in 1935 and has now engineered its plant so that a new house is rolling off the assembly line every 25 minutes. The company proved successful not only in its production methods but also in its plan of merchandising, and in 1944 U. S. Steel Corp. bought a majority interest in the concern. Plans are now afoot to set up other plants throughout the country and to organize sales on a nationwide basis.

Models Offered

At the present time Gunnison offers eight basic house plans, from the small size, measuring 28 feet by 24 feet and providing a living room, kitchen, bath, utility room and two bedrooms, to the large size 52 by 24 feet and having a 32 foot long living-dining room, kitchen, utility room, four bedrooms and two baths. Each of these eight basic houses is available in either a right or a left hand plan, so that you may have your living room on whichever side of the lot you choose. In order to give variety to the appearances of its homes, Gunnison offers a wide selection of architectural treatment. For example, you may have shutters, window boxes, entrance hoods, wall or corner quoins, pilasters and plaques, or wrought iron entrance railing to add to the attractiveness of the exterior of your Gunnison home. As optional features at an additional price you can get a basement, fireplaces, wings, porches, arcades and garages.

Merchandising Methods

Gunnison has set up a network of dealer organizations, patterned after the dealerships of the auto industry. Most of these dealers are located in the middle west, but there are some in other parts of the country. You can ascertain whether there is a representative in your community either by consulting the telephone directory or by mailing a postcard to the company's main office. These Gunnison dealers have been specially trained by the company and can be of considerable assistance to you in determining many of the problems of home building. If you do not already own a lot, the dealer will assist you with the purchase of a suitable one. If you are not in a position to pay cash for the house, he will assist in the preparation of the application for a F.H.A. loan. As soon as the financing has been completed the dealer will begin the foundations for your new Gunnison Home. In about two or three weeks' time, he will present you with the keys to

your new home, everything completed from foundation up, with wiring, plumbing, bathroom, kitchen and heating equipment installed and even sidewalks, drives and landscaping completed.

How Gunnison Houses Are Made

The materials which go to make up the panels for a Gunnison home begin their course down the assembly line as raw lumber and thin veneer. The lumber passes through high speed saws to be converted into sturdy frames for walls, roof, ceiling or floor panels. These frames receive insulation and a vapor barrier against dampness, and then are carried along the conveyor belts to huge hot presses where several layers of hardwood veneer are welded permanently and securely to the frame with the newest phenolic resin. Each panel is a veritable box girder attaining a strength which is greater for its weight than steel. The panels are trimmed, sanded, painted on the exterior surface, and lacquered and polished on the inner wall. Windows and screens, doors and hardware are then installed to make the panels complete. A light, honey-toned fir paneling is used on all interior walls and the floors are of grained quarter oak. The kitchen, bathroom, and utility room are finished in white and may be tinted in any color desired.

Utilities

The utility systems are all completely installed and connected by Gunnison's dealer-crews before the house is turned over to you. In the kitchen two large wall cabinets and a 12 foot sink cabinet with cupboards and drawers are supplied. The company also furnishes an electric range and a seven cubic foot refrigerator. The bathrooms have modern type built-in tubs, toilet, and lavatory. A medicine cabinet, 2 soap dishes, 2 towel rods, and certain other minor equipment are also included. Fluorescent tubular lights flank the medicine cabinet mirror. Either linoleum or a special waterproof floor finish is applied on kitchen and bathroom floors. A forced air heating unit is supplied in the appropriate size for each home. There are overhead lights in the bathroom, kitchen, and utility rooms, but in all other rooms such fixtures have been eliminated in favor of numerous floor plugs for indirect lighting.

Prices

Gunnison Homes sell from \$6,000 for the smallest size to \$10,000 for the largest size on a completely erected and equipped basis.

HARNISCHFEGGER HOMES

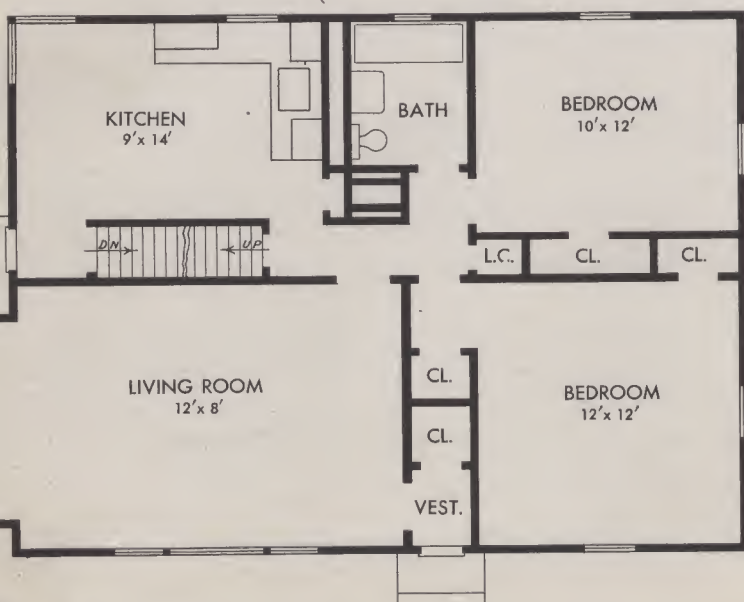


Produced by
HARNISCHFEGGER CORPORATION

Houses Division
Port Washington, Wisconsin



EACH OF THE FOUR Harnischfeger Homes shown have the same basic
 floor plan, but are varied by the application of different exterior wall
 surface materials and individual architectural treatment. The basic
 design offers a well-planned, compact interior arrangement, with
 good-sized, well-lighted rooms, and convenient closet space. Plans
 provide for a full basement and attic space for storage or for extra
 rooms.





Facts and Figures About Harnischfeger Homes

THE HARNISCHFEGER CORP. is an old and established company in an industry quite unrelated to the housing field, having manufactured and sold such industrial equipment as overhead cranes, electric hoists, arc welding equipment, motors and excavators for more than a half century. During the depth of the depression, the company organized a staff of engineers to consider methods for the factory construction of low cost housing employing some of the cranes, hoists, welders, and other equipment which they produced and had readily available. In 1935 the Houses Division was organized with architects, housing experts and engineers on the staff. Since that time several thousand housing units have been produced. Some of these have been permanent, privately owned homes, while others have been of the temporary, wartime variety.

Number of Models

Harnischfeger produces only two basic models, with six variations as to exterior design and architectural treatment. The WH series, illustrated on the preceding pages, offers four exteriors based on a basic plan which is 34'3" by 24'3" in overall dimensions and provides a living room, kitchen, two bedrooms, and a bathroom. The PW series is smaller in size, measuring 26'3" by 30'9", provides a dining alcove off of the living room and features large window areas for abundant light and fresh air. Because of the shortage of materials, the PW series is not presently available.

Method of Distribution

Harnischfeger sells its houses only to well-established development builders or realtors who have been active in land development, financing, construction, and sale of one-family homes. At the present time the company limits its sales to an area within a 300 mile radius of its Port Washington, Wisconsin plant. Deliveries are being made to dealers in Wisconsin, Illinois, Michigan and Indiana and these local dealers develop the land sites, arrange for financing, erect, sell and service the homes. If you live in one of the four states presently served by Harnischfeger, you can ascertain the name of your local dealer by writing directly to the company's office at Port Washington, Wisconsin.

Material and Labor Supplied by the Factory

Harnischfeger supplies the dealer-builder with about 65 per cent of the total labor and materials necessary to complete the basic structure. For the basement it supplies assembled cellar windows and frames, together with screens and hardware. For

the floors it supplies joists, headers, trimmers, bridging, and $\frac{3}{8}$ inch plywood subflooring. These flooring materials are pre-cut to exact size, but are not assembled into panels or sections. Factory cut wood rafters and plywood sheathing are supplied for the roof and pre-cut joists, headers, trimmers, and bridging for the ceiling are furnished ready for assembly at the site. Prior to the war the company supplied welded steel frame sections for floor and ceiling construction, but wartime shortages necessitated the substitution of pre-cut wood framing. When steel is again available for these uses, this type of construction will be resumed.

The exterior walls and the interior partitions are made into assembled panels at the factory. The framework of wall panels is securely bonded with resin adhesives to heavy plywood sheathing on the exterior and to sanded plywood ready for decorating on the interior. A one-inch blanket of insulation and a vapor seal is inclosed within the panel. Glazed window sash, completely hung on balances and weatherstripped at the head, sides, and sill, are installed as a part of the panel. Partitions differ only in that they are not insulated and have sanded plywood on both sides ready for decorating. A special panel connection is used between units so that wallpaper or coated fabrics can be employed without any sectional appearance on the interior. Bevel siding, shingles, brick or stone veneer are applied over the exterior walls at the site.

The company also supplies the basement and attic stairs knocked down and ready for assembly, kitchen cabinets assembled in sections, all interior and exterior doors pre-fitted with locks and hinges, and all molding, trim, and hardware.

Along with this panel and pre-cut material, Harnischfeger Corp. supplies its dealer-builders with complete architectural and engineering service. The builder receives complete erection drawings for each home and the assistance of a company erection supervisor on the earlier jobs to assure that his crew is properly trained in the best methods of erection.

Price

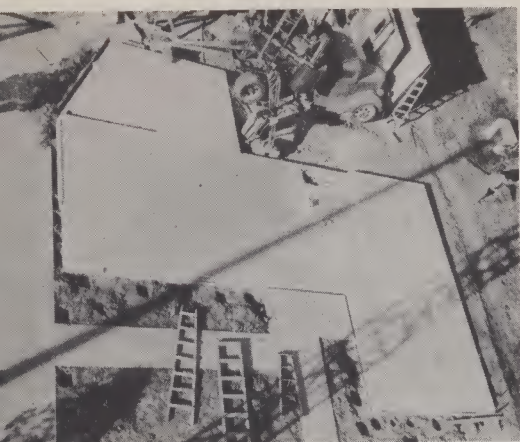
Since the dealer-builder must prepare the site, build the foundation, furnish and install the plumbing, heating, wiring and fixtures and provide the decorating, the price varies substantially according to local labor costs, the type of exterior treatment, and the fixtures included. The price range in Wisconsin of the completed homes with utilities installed and ready for occupancy has varied between \$6,100 and \$8,400, exclusive of the lot. In points more distant from the factory the price would be somewhat greater because of the increased transportation costs.

HAYES ECONOCRETE HOMES



Produced by
**HAYES ECONOCRETE CORPORATION
OF AMERICA**

112 West Ninth Street
Los Angeles 15, California



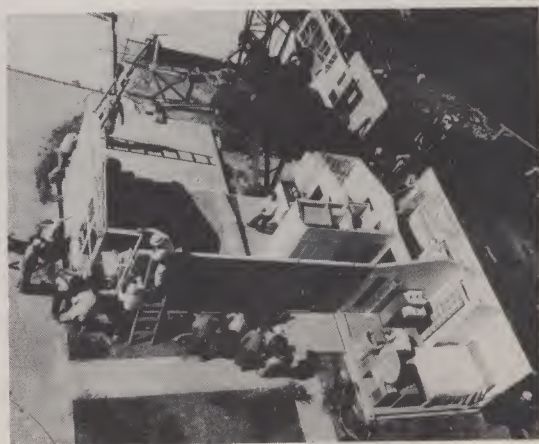
Floor slab before any concrete sections have been erected.



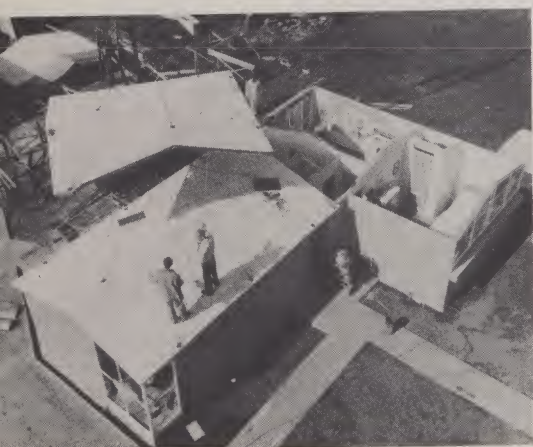
2. Portable crane lifts an inner partition into place.



Outer wall with front door installed being lowered into place.



4. View from above showing several walls and some furniture already in place.



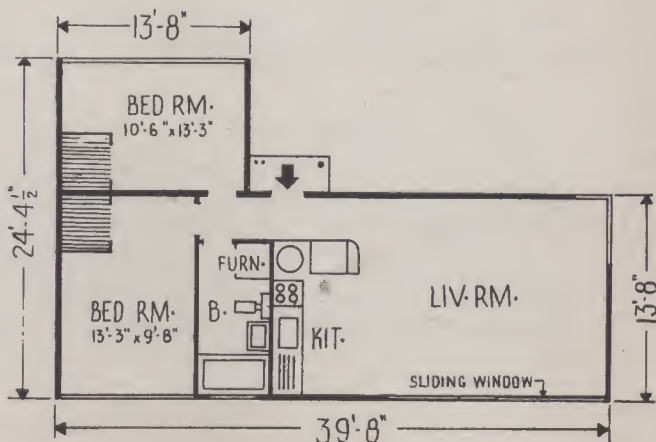
5. One of the three sections of the roof being lowered into position.



6. Exterior view of the finished house at El Cerrito, California.



INTERIOR VIEW OF LIVING ROOM. A more spacious effect and a substantial saving in cost are achieved through the use of the roof line for the ceiling. When full mass production is achieved this house is expected to sell for about \$2,000 complete!



Facts and Figures About Hayes Econocrete Homes

THE HAYES ECONOCRETE CORP. has, over a period of years, experimented with and developed a new and unique building material. It looks like concrete and has the strength of concrete, yet it weighs only a third as much, nails can be driven into it, and it can be sawed and worked with carpenters' tools. It has excellent insulating qualities and can be made into a semiflexible form. This unusual material is known as "Plastikair Compound" and is produced by a patented formula by which chemicals, when mixed with Portland cement and stone aggregate, cause the mixture to expand to several times its original volume, give it resiliency, and make it watertight.

Having developed a new material, the Hayes Company worked out a technique for using it in the prefabrication of attractive, durable homes.

How Econocrete Homes Are Built

The walls, roofs, partitions, and sometimes the floors are molded in huge forms laid flat on the ground at the factory or casting yard. After the forms are carefully oiled, in order that the wall may be more easily removed after it dries, door and window frames and the conduits for wiring and plumbing are laid in their proper position. Bars of reinforced steel are crisscrossed at about 12 inch intervals for added strength. Then concrete mixers move into position and the special building compound is poured into the forms to a thickness of $2\frac{1}{2}$ inches. With three mixers an eight room house can be poured in approximately 30 minutes. The panels are left to dry for two days and are then removed from the forms and stored in a file-like arrangement until they are transported to the site.

The entire side of a house may be molded into a single section. Where two or more panels are used a special tongue and groove is molded into the panels so that they fit into each other at the joint. Corners also have special interlocking joints. Roof panels are set flush with each other and are made watertight by the use of an overlapping metal joint. The top surface of each wall panel is provided with threaded sleeves to receive bolts. These bolts are employed initially as lifting points in hoisting and later to hold the roof securely in place.

Transportation and Erection

The concrete sections are lifted aboard a truck or trailer at the plant and off again at the site by a portable crane. The foundation is prepared before the house is delivered, and may provide a basement if the purchaser so desires. The floors, of heavy, insulated compound, may be cast in place as one large slab at the site or made in sections at the factory and transported to the site.

Since the special material used has a greater resiliency than ordinary concrete, it is more comfortable for floors, but if the idea of having floors made of this material is distasteful to you, hardwood or linoleum may also be used.

Once the foundation and floors are in place, the truck crane begins to lift the wall, partition and roof panels off of the truck and into place. A mortar or grout is placed between the foundation wall and the exterior walls and between the walls and the roof sections in order to weld these sections together permanently. The corners where the walls join are finished with a cement gun which fills the open corners and imbeds the reinforced steel rods that were left protruding from each of the precast wall slabs.

Since erection is done for the most part by mechanical means, it can be accomplished in a very short time. In a test conducted in March 1945 for the benefit of Life Magazine photographers, a two bedroom house was completely erected and made ready for occupancy by a crew of thirteen men in thirty-four minutes' time. This included making all plumbing installations and gas, water and electrical connections and moving in the furniture. Needless to say, this operation was an exceptional one, but it demonstrates the speed which can be attained by the Hayes method of construction.

Method of Distribution

The Hayes Company is exclusively an engineering and licensing organization, and not a construction and selling company. It licenses persons or firms throughout the country to set up their own plant and to manufacture and market the Hayes Econocrete prefabricated homes within a designated territory. With the license goes the right to use all the processes, methods, formulas, techniques and the special lightweight concretes and compounds. The individual licensees draw up their own plans and designs of homes suitable to the part of the country which they serve. These plant operators will offer a varying number of houses for sale. Some concentrate on two or three models, others offer five or six styles. These are usually one story houses, although two story houses can be erected by this system. The local licensee usually serves a limited area, either part or all of a state, in order that the house may be economically transported by truck from the factory to the site. He usually sells the homes directly to customers, although some sell through real estate brokers.

Price

Hayes Homes sell from about \$4,500 for a completely equipped two bedroom model to \$8,000 for the larger house shown on page 51.

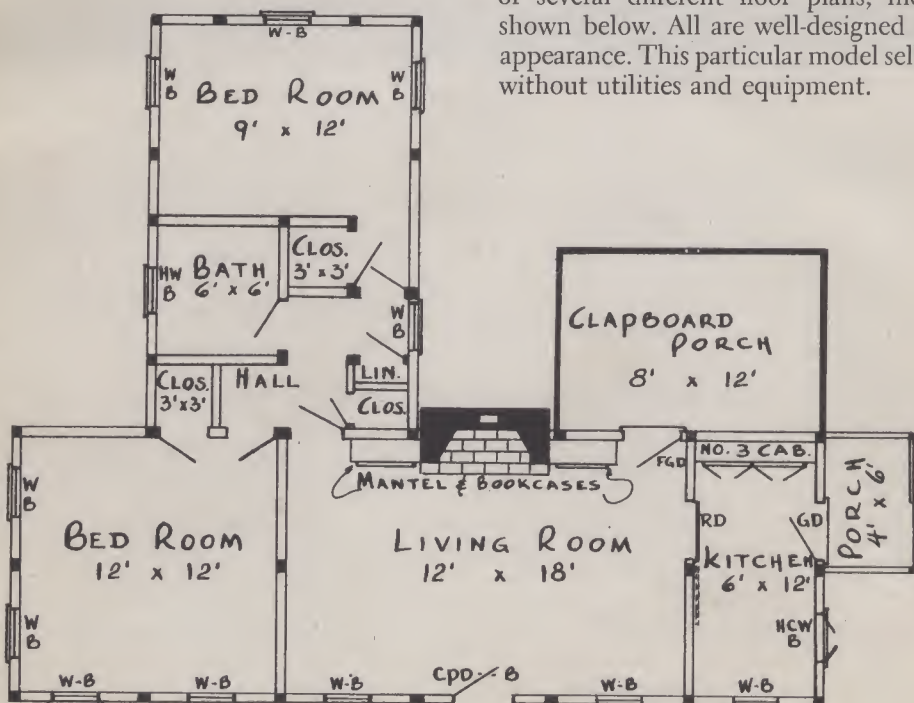
HODGSON HOMES



Produced by
E. F. HODGSON COMPANY
1108 Commonwealth Avenue
Boston, Massachusetts

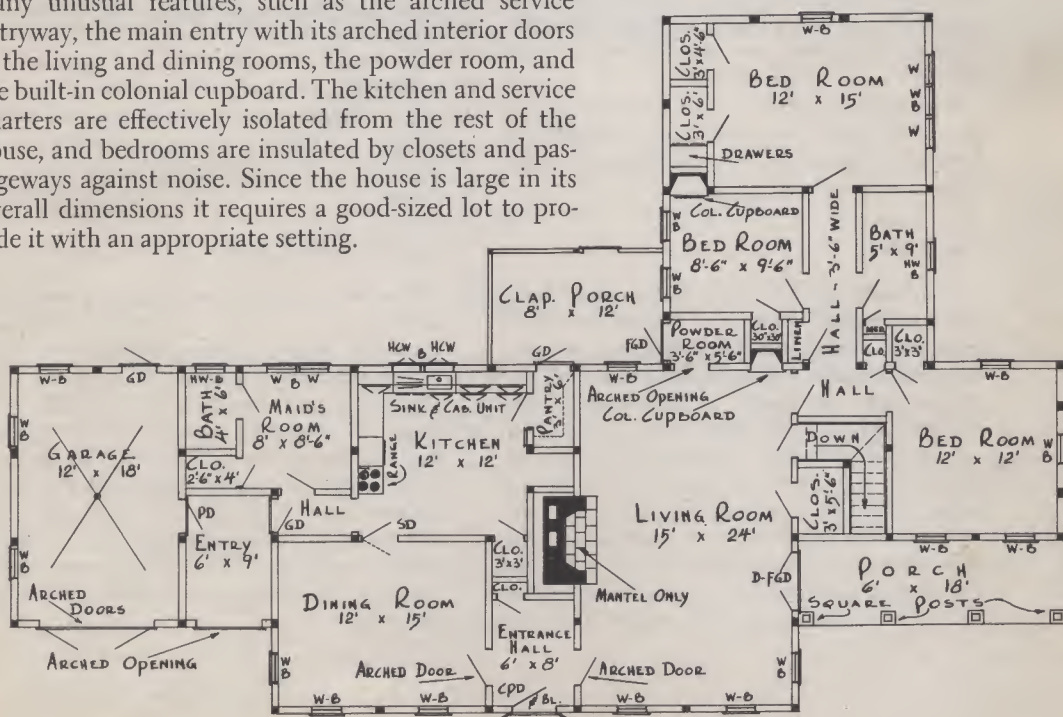


THIS CAPE COD COTTAGE can be obtained in any one of several different floor plans, including the one shown below. All are well-designed and attractive in appearance. This particular model sells at about \$3,000 without utilities and equipment.





A LOW RAMBLING HOUSE with large, airy rooms and many unusual features, such as the arched service entryway, the main entry with its arched interior doors to the living and dining rooms, the powder room, and the built-in colonial cupboard. The kitchen and service quarters are effectively isolated from the rest of the house, and bedrooms are insulated by closets and passageways against noise. Since the house is large in its overall dimensions it requires a good-sized lot to provide it with an appropriate setting.



Facts and Figures About Hodgson Homes

IT HAS been more than half a century since E. F. Hodgson built a small factory at Dover, Massachusetts, and began to make houses, camps and buildings of various kinds in panel sections, which could be erected quickly without sawing or nailing. Since 1892 Hodgson houses have been sold and erected in all parts of the United States and in many foreign countries.

Design

The Hodgson Company's method of operation differs from that of most prefabricators in that it does not have any set number of plans and designs from which you must choose. Instead it offers special panel sections in units consisting of walls, floor, roof, and ceiling. These units are 6 feet long, in varying widths of 12 feet, 18 feet, and 24 feet. There are hip and gable ends and a valley roof unit which can be used for L or T turns. With this combination of units you can create just about any plan you desire. If you want a house measuring 24 feet by 30 feet, you would order 5 units, 6 feet by 24 feet, together with two 24 foot gables, one for each end of the house. You can order the windows or doors built into the wall panels at whatever location you wish. Windows may be either double hung or casement type, and you can choose from among several different types of doors, porches, garages, bay windows, shutters and other architectural treatment. Thus just as your small son builds innumerable types of structures by varying the arrangement of his building blocks, so you can become your own architect with almost limitless possibilities. Furthermore, the Hodgson Company's staff will assist you in preparing the plan which will best satisfy your individual requirements and come within your means.

If you do not care to embark upon this adventure of designing your own house, Hodgson can furnish you with scores of plans similar to those shown on the preceding pages.

Construction

The framework of Hodgson wall panels is made of red cedar and Oregon pine, covered on the exterior with a heavy waterproof fiber, and over this rabbeted red cedar clapboards are put on with galvanized nails. The interior walls are covered with ½ inch Celotex Arctic board which serves as insulation and wallboard. The inner finish may be painted or papered as you prefer. The roofs are framed with pine, lined with fiber and either covered with red cedar rabbeted boarding or with board sheathing and asphalt or red cedar shingles. Floors are constructed with spruce joists covered with clear Oregon pine or fir, sanded and shel-

lacked. Grooved ledgers are connected to the floor sections and into each ledger is fitted a tongue on the side wall section, making a tight joint between floor and side wall. If you wish to pay the additional charge, the company will furnish double boarded floors with a waterproof paper between boards. Ceilings consist of frames running across the rooms to form panels 3 feet by 6 feet. In these frames Arctic board panels are securely rabbeted. The ceilings are either 7½ or 8½ feet high. Before the panels leave the factory they are painted three coats on the exterior and interior woodwork is stained walnut.

Distribution

The Hodgson Company operates offices at Dover, Massachusetts, Boston, and New York City. In all other parts of the country, negotiations and purchases are accomplished by direct correspondence with the main Boston office. If you live within 200 miles of Dover, shipment will probably be made by truck, which is the most convenient and the least expensive for short hauls. In areas more than 200 miles from the factory, shipment by rail or ship, if you live near the coast, is preferable. At the present time, the company has such a backlog of orders that deliveries are on a four month basis; in normal times, however, delivery can be made within a week to ten days after an order is received.

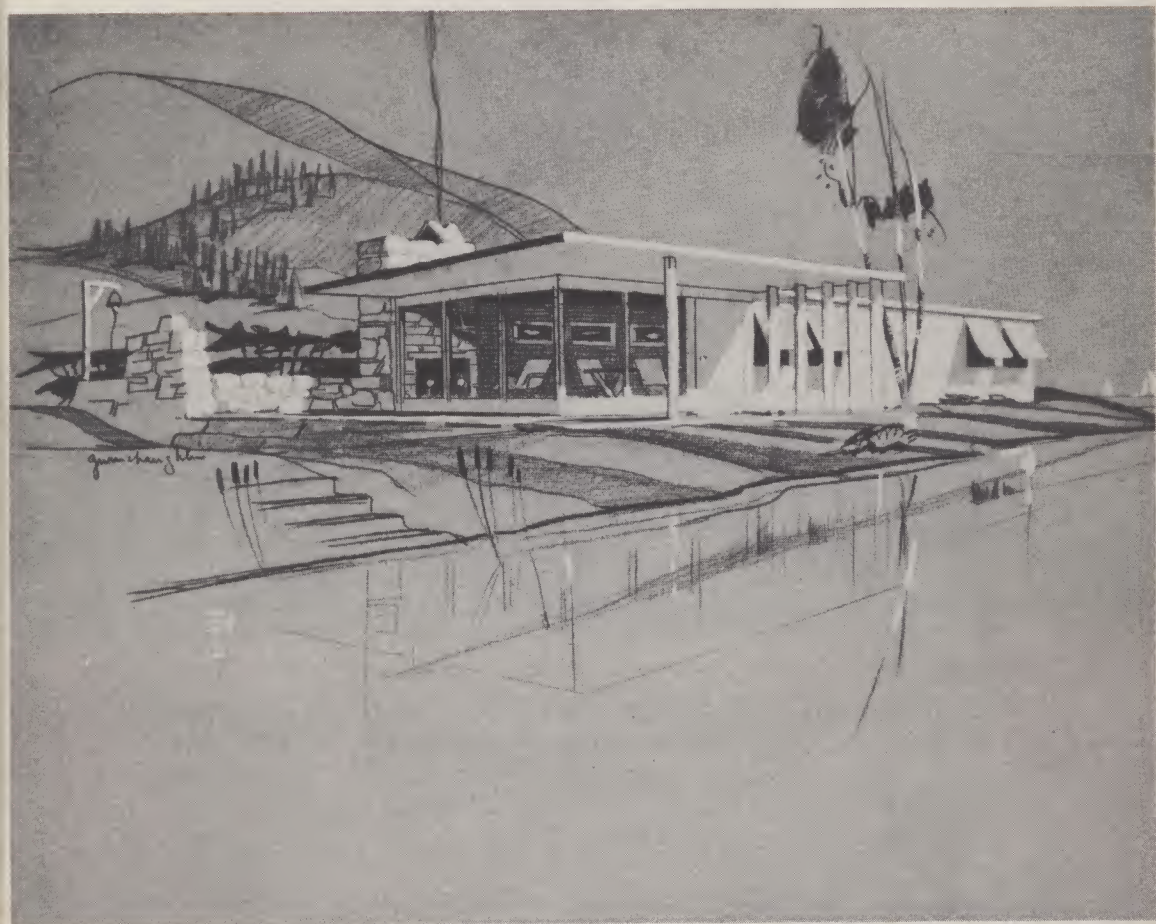
Prices

The Hodgson Company operates sales offices at \$900 for a small studio, kitchen, and lavatory measuring just 12 feet by 18 feet to \$19,000 for a 15 room house with four baths, two porches and a connecting greenhouse. The prices of the three houses shown on the preceding pages are \$6,566, \$1,692, and \$7,506 respectively. All prices are f.o.b. the factory and you must pay the freight charges.

Extras You Will Have to Pay

The price you pay for a Hodgson house does not include such items as excavation, foundation or basement, erection, heating, wiring and plumbing fittings and fixtures, window screens, shades, range, refrigerator and cabinets. It is not feasible to attempt any itemized estimate of the cost of these items in view of the fact that each Hodgson customer works out a separate and distinct design for his own home. Thus the cost of the basic home and the cost of these extras will vary accordingly. However, you can expect these extra items approximately to double the price paid to the Hodgson Company.

HORSLEY HOMES

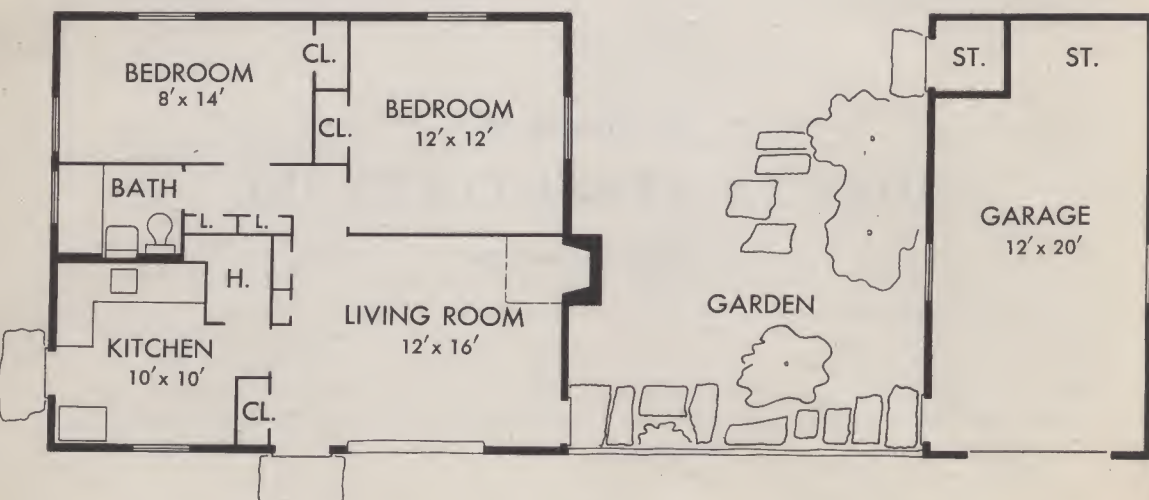


Produced by
HORSLEY STRUCTURES, INC.

Eugene, Oregon



THIS LITTLE HOME, the smallest two bedroom house produced by the Horsley system, is constructed by the same methods and with the same quality materials as in the much larger and more expensive Johnson house shown on the opposite page: This house is designed to reach the buyers in the lower income, mass market.

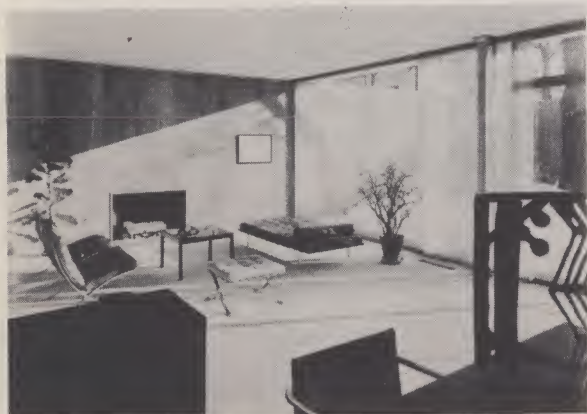




Above: The Philip Johnson home, completely prefabricated by the Horsley system in 1940 and erected by workmen having no previous experience with prefabrication, was selected in 1945 as one of the most important modern structures.

Below: The front of the Johnson house is entirely of glass, three round columns of laminated maple providing the support for the ceiling beams. It will be noted that the house faces south to admit the warming rays of the winter sun.

Below: The living room of the Johnson house. The interior walls are of the latest type striated plywood, and are continued to form the walled court at the front of the house.



Facts and Figures About Horsley Homes

THE WORK underlying the construction activities of Horsley Structures, Inc., was initiated by S. Clements Horsley, a well-known architect and pioneer in prefabrication methods, more than fifteen years ago. In the late 1920's Horsley began to evolve a new architectural philosophy built around materials and their uses. The basic premise of this philosophy was that architects must know the chemical and physical characteristics of materials, and then let these characteristics dictate their use in construction. From this functional approach to architecture it was only a short step to a deep interest in industrialization processes and belt-line production methods. In 1932 Horsley was awarded first prize in an architectural competition sponsored by the Architectural League of New York, with a completely integrated, modern, prefabricated house. Horsley established an organization to evolve and perfect the system which he had developed, and since 1939 this organization has been operating as an incorporated company. Prior to the war the company had built many interesting and unusual homes, including some in the expensive, quality class.

Number of Models

The Horsley system contemplates the construction of an alphabet of structural panels designed so as to be suitable for many types of structures. Thus, as our 26 letter alphabet can be formed into a million words, so these basic structural entities, factory produced in quantity, can be used to construct a thousand different buildings, from one story to many stories. Such a system provides flexibility and variety in both plans and products. It makes possible the construction of dormitories, churches, schools, airplane hangars, shops, theaters, and all types of farm buildings as well as private homes. In order not to spread its immediate operations too thin, however, Horsley Structures is concentrating its current production on seven different models of homes ranging from the smaller two bedroom unit pictured on page 60 to spacious three bedroom houses. Three of these homes are styled in a distinctly modern manner, while four follow more traditional design. All are planned to be used without a basement, utility rooms being provided in the larger houses. Detached or semi-detached garages or "carports" can be obtained as optional equipment.

Construction and Erection

Horsley homes are built by the panel method combined with a system of aligning members at the juncture of all planes. Each panel has a skeleton structure or frame, covered on both sides by plywood. The plywood is pressure glued to the

framework so that the surfaces of the panel work with the frame to form a box girder type of panel. This stress skin type of panel is the strongest structure, weight for weight, of any known type of construction. It is made possible by the comparatively recent development of synthetic resin glues which produce waterproof plywood, and make possible the cold glueing of panels. Panels are assembled and glued in jigs as a belt-line product. Each panel has an interlocking edge on all four sides, and all are interchangeable.

Panels come from the factory completely insulated and finished. When filled with fireproof mineral wool insulation, they will not sustain combustion, and will pass more than a one hour fire test under ASTM standards.

At the juncture of all planes—floors with walls, ceiling with walls and roof with walls—there is an aligning beam which performs a twofold purpose: (a) it aligns all panels into a true plane, and (b) insures an accurate and tight joint between wall panels and the floor or roof. The aligning foundation beams are set in place first, and to these beams are interlocked the floor panels, which come to the building site completely finished with insulation, hardwood flooring and surface treatment. The walls also interlock with the foundation beam, and all panels are glued into place with the latest recorcinal resin glue, pressured by the use of properly spaced screws. When the walls are up they are aligned by an eve beam which interlocks with the walls and with the ceiling panels.

Interior and exterior wall surfaces may be of any color or natural wood finish. Paneling of the hardwoods, such as walnut, cost little more than painted surfaces so that even the lower priced homes may afford beautiful wood paneled walls. Special plastic treatment is pressed and baked into the wall surfaces after the panel has been fabricated. Upkeep and maintenance of surfaces are kept to a minimum for as much as ten or fifteen years by this special treatment.

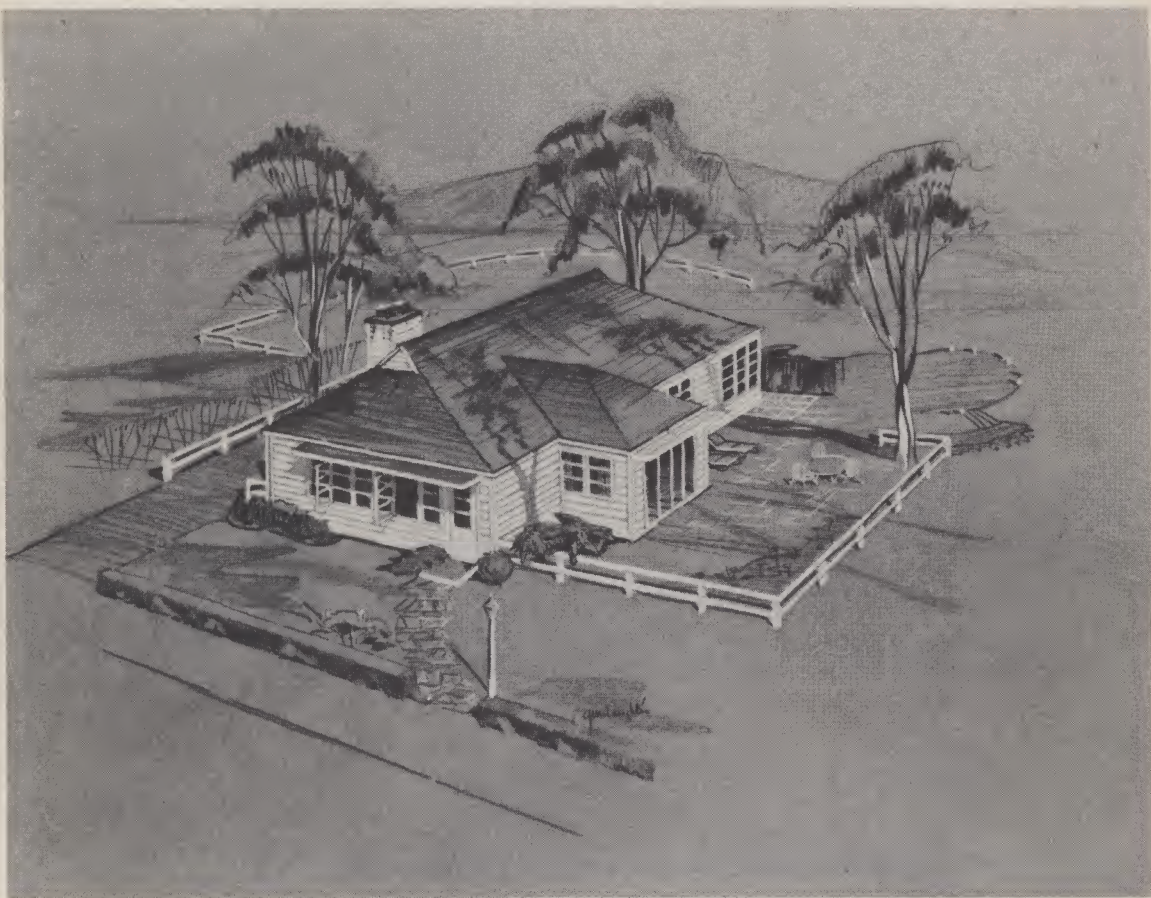
Distribution

The company plans to merchandise the homes produced at its Oregon plant through dealers and department stores, and in some cases promotional developers. All of the parts for the basic shell of the house are shipped to the local distributor who assumes full responsibility for erection and the installation of utilities.

Prices

Horsley Homes are tentatively priced from \$4,000 to \$6,000, although uncertainties in the raw material market have prevented the establishment of a firm price schedule.

JOHNSON HOMES

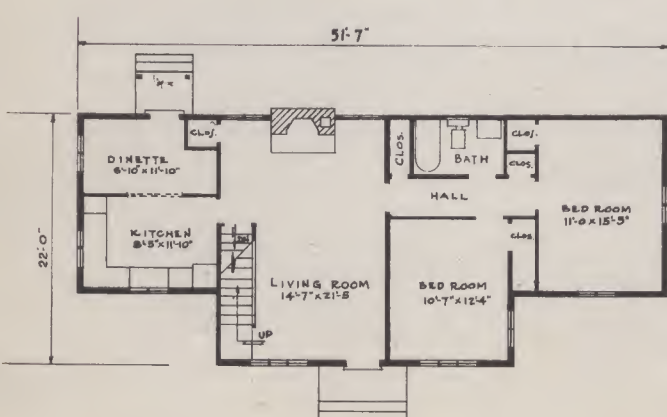


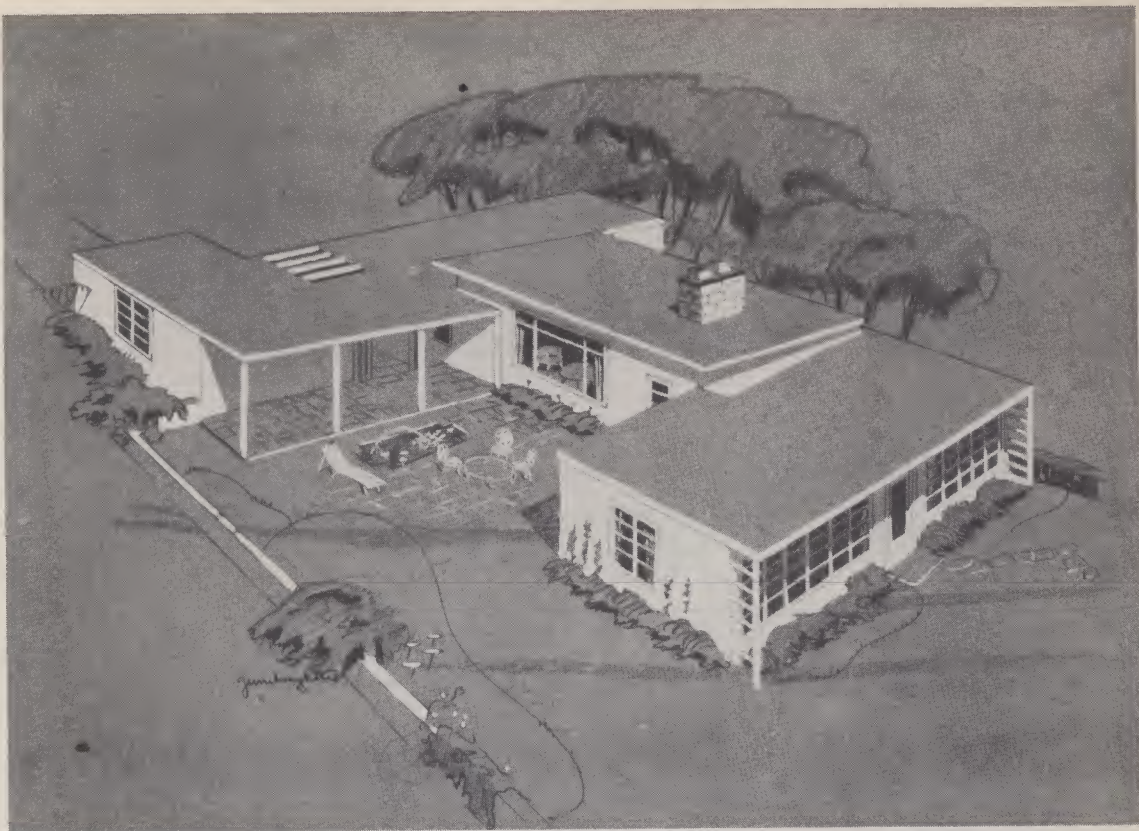
Produced by
JOHNSON QUALITY HOMES, INC.

270 Forty-First Street
Brooklyn, New York

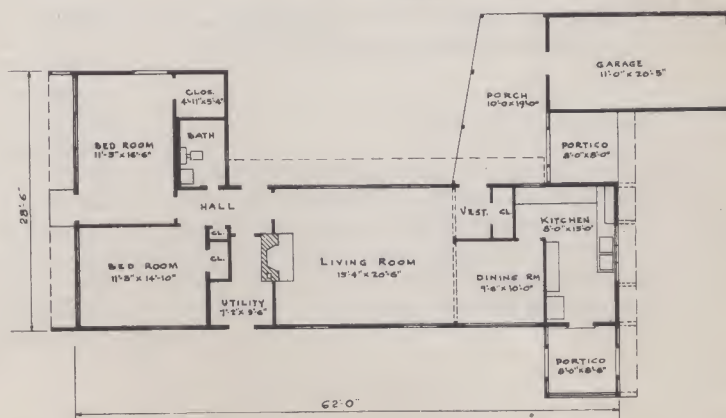


A WELL-BALANCED DESIGN providing five large rooms and an attractive stair-way leading up from the living room to the attic, which can be finished to provide additional bedroom space. When the breezeway and garage are added, the overall length of the home is about 76 feet.





A SMARTLY MODERN RAMBLING low-roof model for a fair-sized plot. Main house is 62 feet long, and with the garage is 73 feet long, but is well designed to be placed lengthwise on a lot. A large living room forms the entire central portion of the house with glass area facing the patio. Ample windows on the opposite side of the large living room assure light and cross ventilation.



Facts and Figures About Johnson Homes

THE JOHN A. JOHNSON CORP., with headquarters at Brooklyn, N. Y., and affiliated mills located at Pemberton, N. J., Conway, S. C. and Johnson City, Tenn., has launched a large-scale postwar program for the production and sale of pre-assembled housing units. The company is no novice in the housing field having constructed several thousand wartime emergency housing units for the government, including many near the atomic bomb plant at Oak Ridge, Tennessee.

Types of Houses

At the present time it offers seven different models in both traditional and modern design. The plans for these homes are flexible. The purchaser who prefers a cellar can have it or the house can be constructed without a basement, having a utility and storage room on the ground floor. Furthermore, many of these houses are planned with a view to future expansion to keep pace with increases in family or income. In one of the smaller houses, for example, the original closet space between the two bedrooms can be easily transformed into a hallway leading to a new wing containing two additional bedrooms.

Materials Supplied

The Johnson Company supplies about 80 per cent of the materials which go into the completed shell of the house. Exterior wall panels of story height and the length of an entire room are produced at the factory from 2 x 4 wood framing covered on the exterior by ½ inch fiberboard sheathing which also serves as insulation. Either wood siding or shingles are applied over this fiberboard. Windows and doors are installed, but the interior of the wall panels are not ordinarily finished at the factory, being left open for the installation of the electrical and plumbing systems at the site. Floor panels are also produced at the factory with 1 inch subflooring being securely nailed to the heavy, broad joists. Hardwood finish flooring is supplied, but to prevent scratching and denting is applied at the site after the rough construction work is completed. The roof rafters, sheathing and shingles are all furnished, but must be installed by usual hammer and saw methods at the site.

Merchandising and Price

In order that the public can see exactly what Johnson homes look like, this company has placed full-sized homes on display in department stores in some of our larger cities. John Wanamaker stores in Philadelphia and New York have each given over an entire floor to a little village comprised of

several life-sized houses completely constructed, furnished and equipped. If no store in your community sells these homes, you can order directly from the Johnson Company. The prices quoted on these semi-assembled houses range from \$2,527 for a two bedroom cottage to \$6,136 for the spacious, modern design shown on page 65. These prices do not include many of the necessary costs in providing the finished home, as will be pointed out below, and it is necessary to double the quoted price to arrive at an approximation of the final cost of the house ready for occupancy.

Additional Items to be Supplied by Purchaser

Although Johnson Homes can be constructed with or without a basement, most of the plans call for large utility rooms on the first floor for the heating unit, water heater and laundry equipment, thus making a basement unnecessary. You will still have to provide a foundation for these houses together with the anchor bolts which are embedded at the top of the foundation wall and the sill plate which is attached to the foundation.

You will also have to pay the freight charges on a Johnson Home from their nearest plant to your freight station and then have the materials trucked to the site.

Since the factory-built panels are large, several men will be required to lift them into place. First the floor panels are assembled and nailed to the sill plate atop the foundation wall. Then the wall and partition panels are brought to their proper position on the floor panels and nailed to the floor framing and to each other. Ceiling joists are then strung across the walls and partitions, and the roof rafters, sheathing and shingles are put on. Finally, the finish hardwood flooring is laid over the subflooring installed at the factory. It is estimated that six carpenters could have the house shell completed in about five days. The plumbing, wiring and heating systems and fixtures, the range, refrigerator and kitchen cabinets must also be furnished and installed at purchaser's expense. After the utilities are roughed in an interior wall surface of lath and plaster or wallboard must be applied. If a fireplace is desired the material and labor for its construction must be supplied by the owner.

After the house is completed, the exterior and interior will have to be painted and finished. A priming coat is put on the exterior walls at the factory, but all other painting and decorating is left up to the purchaser. The Devoe and Reynolds Paint Co. has printed a small brochure giving the paint specifications for these houses.

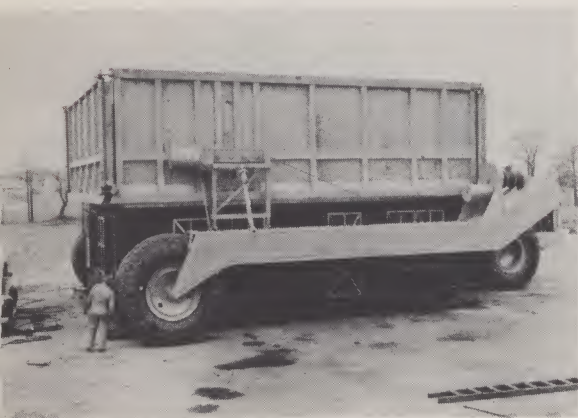
Thus the total cost of a Johnson Home will range between \$8,600 and \$10,500 for the first two homes and \$10,000 to \$12,500 for the large modern style home shown on page 65.

LETOURNEAU HOMES



Produced by
R. G. LETOURNEAU, INC.
Longview, Texas

Inner forms are placed upon their bases — door and window frames are set against the forms in desired sizes, number and locations, and electrical conduits, fuse boxes and room outlet boxes set in place. Reinforcing steel mesh is mounted and it's ready for the outer forms.



The Tournalayer, with outer form hoisted high in the air, backs up so that the rear wheels straddle the inner forms and suspends the outer form directly overhead.

The electrically controlled hoists lower the outer form down over the inner form until it rests on the base. The Tournalayer may be unhitched from the outer form, leaving the forms assembled and ready for concrete pouring. The Tournalayer is then free to repeat this operation with other molds. One Tournalayer unit can service as many as twelve molds.

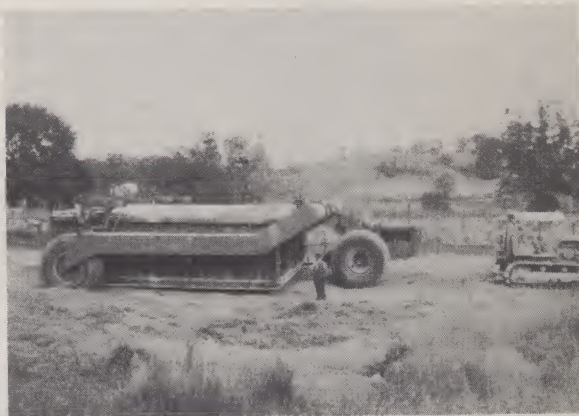


Mixer moves in . . . begins pouring concrete into top of each mold. Care is taken to see that concrete is worked closely around window and door frames. When walls and partition have been poured, the mixer continues to pour until roof is completed. The entire mold remains there until the concrete is adequately set.



After the concrete has set sufficiently, a worker enters the inside of the chambers and by turning a crank, the walls of the inner mold come inward, away from the concrete. The Tournalayer backs up, straddles the mold, and hooks onto the outer form. The Tournalayer hoists the outer form, house and all, and starts traveling toward the building site.

Approaching the building site, the form containing the house is carried directly over its permanent location which has been previously trenched out or leveled.



The outer form containing house is now lowered into position. After positioning, a simple mechanical device moves the four sides of the outside form outward . . . clears the house all around. The mold is then hoisted to clear the top of the house, and the Tournalayer returns the mold to the central operating point for the next house.

Here is an exterior view of one of the first Tournalaid homes completed at a development near Vicksburg, Mississippi, built for LeTourneau employees.



Facts and Figures About the Tournalaid Homes

THE LETOURNEAU CORP. for many years has been engaged in the development, manufacture, and sale of various types of earth-moving machinery and equipment such as rooters, bulldozers, and cranes. The president of this company had long been interested in the problem of better and cheaper housing and in 1936 the company began to experiment with various methods for the factory production of homes for its workers. Its first home, of all steel welded construction, measured 32 by 44 feet and included three bedrooms and a built-in garage. These houses were attractive and cheap, but they presented a real problem of delivery since they were entirely assembled at the plant and proved much too large to be hauled on the highway. Therefore, the company turned to other methods and finally developed the equipment for the construction of cast concrete dwellings.

Number of Models Offered

All LeTourneau Homes have the same basic dimensions—32'8" long by 24' wide. This does not mean, however, that all these houses are identical with respect to exterior appearance or interior arrangement. Openings for windows and doors can be arranged in any size, number or shape in any of the four walls. The front entrance and kitchen door may have a protecting hood or not according to your own preference. Inside the house doors or archways may be molded into the center concrete partition, and the other partitions can be constructed according to a wide variety of plans.

Construction Details

The walls and center partition of the LeTourneau house are 5 inches thick, but flare out at the bottom to 12 inches for foundation and bearing area. The walls are 10 feet high so that the house can be set into a trench almost 2 feet deep and still provide an 8 foot ceiling. Thus the house provides its own foundation. The roof is 8 inches thick at the outside and slopes in to the center from which a single drain buried in the concrete carries the rain water to the side of the roof.

Floors may be either wood or concrete. Where concrete is used, several inches of gravel or cinders are first laid and tamped, then topped with a layer of felt to eliminate moisture. Over the concrete

slab either tile, wood or linoleum floor surfacing may be employed.

Window and door frames may be of either wood, steel or aluminum as desired and windows may be casement or double hung. Any standard door can be used.

Partitions bear no weight so they may be of light frame construction covered with any type of wall-board or lath and plaster, according to your own preference.

Any type of heating equipment may be installed, but radiant heating by hot water pipes or hot air conduits cast into the concrete or tile floor are recommended. This type of heating system is entirely out of sight and the heat rises evenly and healthfully from the entire floor surface.

Method and Area of Distribution

The LeTourneau Company is not primarily in the business of manufacturing and selling prefabricated houses. It does manufacture and make available the "house laying" machines which produce the LeTourneau concrete home. In addition to the Tournalayer and the basic molds, the company also produces a Tournamixer, which mixes up to 8 cubic yards of concrete at a time and ejects the concrete up to an elevation of 16 feet; and the Tournacrane, a specially designed crane for assembling molds and other heavy lifting jobs. These machines are leased to contractors and real estate development firms throughout the country and in foreign countries.

Cost of a Tournalaid Home

It is contemplated that with reasonable working conditions the monthly rental on the necessary machinery will cost the contractor somewhere between \$300 and \$500 per house. To this initial cost must be added the cost of the 45 cubic yards of insulating concrete and 2,000 pounds of reinforcing steel, doors and windows, partitions, installation of electric conduit, a coat of waterproofing on the exterior, and painting and decorating on the interior. The cost of these additional items would increase the total price to approximately \$1,500. Plumbing and fixtures, heating and fixtures, kitchen cabinets, tile, linoleum or wood floors on the concrete, bookcases, a refrigerator and range would probably run the cost up to about \$3,500 on a "ready for occupancy" basis.

LEWIS HOMES



Produced by
LEWIS MANUFACTURING CO.
Bay City, Michigan

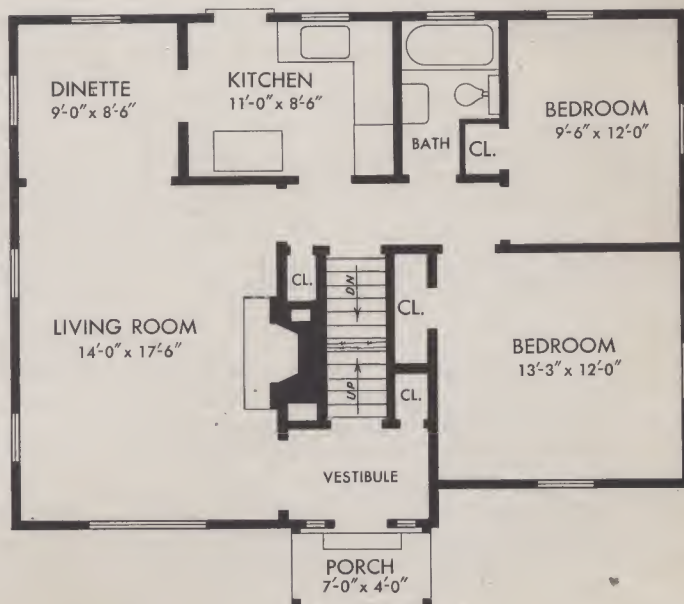


THE TRADITIONAL LINES of this five room house have been altered by the addition of an attractive front gable, an extended entryway, and such architectural treatment as Colonial shutters and window boxes. The floor plan is compact, with the bathroom conveniently located between the two bedrooms and handy to the stairway leading to the second floor where future bedrooms may be provided. The plan calls for a full basement to house the heating and laundry units and to provide additional storage space.





THIS HOME PROVIDES FIVE COZY ROOMS downstairs with space for two additional bedrooms upstairs. The well-proportioned living room is amply lighted by the large studio window at the front and two regular-size windows at the side. The dinette arrangement with a wide curved archway into the living room affords a feeling of added spaciousness to both rooms and exemplifies the trend away from large, separate dining rooms.



Facts and Figures About Liberty Homes

THE LEWIS MANUFACTURING CO., one of the pioneers in this field, employs the pre-cut method of prefabrication by which all the lumber is measured and cut to the exact length at the factory, ready to be fitted together by local workmen at the site. Detailed plans are furnished and each piece of lumber is numbered on the plans and a corresponding number stamped on the piece itself. Windows and doors are assembled at the factory and nails, hardware, paint, varnish, roofing and other materials are included.

Number of Models and Prices

There are thirty-two different one and two story Liberty homes supplied by the Lewis Company at prices ranging from \$1,200 to \$3,700. These homes are ordered from an attractive mail-order catalogue, sold for twenty-five cents by the company, which contains pictures and floor plans of each of the homes it offers. As soon as your order is received, the company's architectural department sends you detailed working blueprints and complete instructions on how to build the foundation—either with or without a basement.

Transportation and Erection

The materials for your house are sent from the factory at Bay City, Michigan, to your local freight station. If you live east of the Mississippi River and north of Kentucky and Virginia, the Lewis Company will pay the entire freight charges. If you live farther south or west, you must bear the freight charges for the additional distance. The materials are specially loaded in a sealed boxcar with studs, rafters, sheathing, siding, etc. being stacked together. You will have to pay the expense of unloading the freight car and transporting the material from the railroad siding to the building site.

Since all the measuring and sawing is done by machinery at the factory, you are spared these time-consuming operations, and the erection can be accomplished in a shorter period with a substantial saving in labor costs. One story houses can be erected by three men in approximately three weeks; two story homes require from three to five weeks.

Fireplaces

Many of the Liberty house plans show fireplaces at the locations which are considered best by the architects employed by the Lewis Company. However, the materials for fireplaces and chimneys are not included and the ultimate decisions as to whether or not the house is to have a fireplace and where the chimney is to be located are left to the purchaser. The high cost of shipping heavy masonry materials such as bricks and cement for long

distances make it impractical to include these materials with the Liberty home units, and the home buyer must secure these materials from a local mason supply dealer. The cost of materials and labor will probably be between \$200 and \$300, depending upon the size and design of fireplace and chimney and the labor costs at the place of construction.

Utility Systems

Before the house is completed, the plumbing, electrical and heating systems must be installed. The Lewis Company does not include any of these materials or fixtures with their homes. A complete kit containing all the electrical material necessary for the wiring of any one of their homes can be purchased as optional equipment from the company at an additional price. The ultimate cost will depend upon the type and number of fixtures and the number of outlets installed, but your outlay for an electrical system will probably amount to at least \$200 and perhaps as much as \$500.

The installation of your plumbing system including a sink, lavatory, bathtub, toilet, hot water heater and laundry will undoubtedly cost a great deal more. Expect to pay between \$600 and \$1,000 for the plumbing item in your building budget and give yourself and your plumber plenty of time to obtain the necessary equipment. A warm air heating system will add an additional \$300 to \$500 and steam or hot water systems are more expensive.

Lath and Plaster or Wallboard

After the utilities are roughed in, the house must be insulated, the interior walls lathed and plastered or covered with wallboarding. Insulation of the house will cost between \$200 and \$300 and the material and labor for either lath and plaster or wallboard interior finish will amount to an additional \$350 to \$500.

After construction of the house is completed and the utilities installed, the house must be painted, the interior decorated, and the floors sanded and finished. Paint for the exterior and stain and varnish for interior trim are supplied by Lewis Company. The labor for painting and finishing the interior is likely to amount to between \$300 and \$500. Additional items, such as a refrigerator, range, and cabinets will probably add another \$500.

Price for Finished House

Thus, the approximate cost, exclusive of the lot, of a completed Liberty home such as those shown on the preceding pages would be between \$5,000 and \$8,000 for the one story models, and between \$7,000 and \$10,000 for two story homes.

LINCOLN HOMES



Produced by
LINCOLN HOUSES CORPORATION
Marion, Virginia



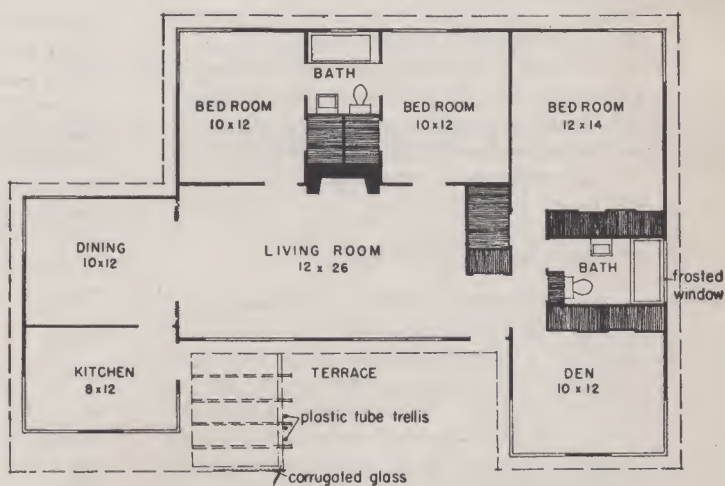
THE HOUSE PICTURED ABOVE is one of several five room units constructed early in 1946 in Virginia. These homes have been occupied since their erection and have proved wholly satisfactory. This model has recently been replaced by a larger five room design with an L shaped floor plan.

Below: The interior of one of the early Lincoln Homes.





THIS ATTRACTIVE NINE ROOM home provides many features not generally obtained in houses costing under \$10,000. It provides two bathrooms, three bedrooms, an office or den, a 26 foot living room, a large separate dining room, and a full-size kitchen. The unique dining terrace with its plastic tube trellis and corrugated glass shield gives the house added distinction.



Facts and Figures About Lincoln Homes

THE LINCOLN house embodies a new and unique process, developed during the war, for making a structural material at a low cost. This process was developed by Lincoln Industries for use in radar housings on war planes and most of the army and navy requirements were filled by this company. The experience and research necessary in constructing these materials to comply with strict government strength and weight requirements provided a helpful background when the firm turned to experimenting in the production of house materials at the end of the war.

A New Material—Expanded Structural Plastic

Lincoln plastic panels are made by alternating sheets of heavy paper, cloth, or glass cloth with glue strips. When the desired thickness is obtained, the sheets are expanded on an automatic machine to form a honeycomb pattern. This honeycomb core is thoroughly impregnated with high-strength phenolic resin and then bonded between facing sheets of aluminum alloy, and the entire panel sealed with a vapor barrier.

Tests conducted by independent laboratories show that this material provides both great strength and high insulating properties. The roof panels have a tested bearing capacity sufficient to withstand an 8 foot snow load. The bearing capacity of the wall panels compares favorably with the load carrying capacity of a brick wall one foot thick.

Insulating values were obtained by a special test made by governmental agencies in June 1946 for the National Housing Administration. A 3 inch Lincoln panel was found to permit only one fifth the thermal transmittance of a 12 inch concrete wall, one third that of an 8 inch brick or cinder block wall, and substantially less than a 7 inch frame wall, and was adjudged adequate, without the use of separate insulating material, in all climates where a low winter temperature of 20 degrees below zero obtains. The material has remarkable insulating properties with respect to sound as well as heat and cold, and is impervious to dry rot, internal condensation, termites and other destructive forces.

How the Lincoln House is Built

The plastic-paper core between aluminum sheets is made into panels 4 feet wide, 8 feet high, and either 2 or 3 inches in thickness. Large single pane windows which give an uninterrupted view are built into the panels at the factory. The large windows at the front are fixed, and screened louvers inserted in the wall panels supply controlled ventilation. The windows in the rear are of the casement type opening outward on metal slides. Doors are of panel construction employing the new mate-

rial with a thin wood veneer which gives them a natural, solid-wood appearance. The doors weigh only 7 pounds as contrasted with an average 20 pounds of a solid-wood door. The foundation of the house is cinder block, concrete, or any other standard masonry construction. The floor consists of a concrete slab poured over a metal grill, with tile, linoleum or wood finished flooring laid over it.

Heat is supplied by a special unit installed beneath the floor. The house is heated both by radiation from the heated concrete floor and by convection through conveniently placed registers. This method of heating is inexpensive, and does not encroach upon the living space in the house.

Roof panels are 3 inches in thickness, employing a protective cap mold over the sealed joints. A 1/4 inch slope for every 4 feet allows the roof to become automatically self-cleaning.

Paint of any desired color can be baked on the panels at the factory, and these surfaces can be washed and waxed in the same manner that a car is cleaned. Interior walls may be painted, papered or covered with veneer.

Manufacture and Erection

At present Lincoln Houses, Inc. is turning out only a limited number of these homes at its pilot plant at Marion, Virginia, but within the next few months several of the larger airplane factories will begin production under the Lincoln process. Since the new material is lightweight and easily transported, distribution will probably be nationwide. Erection is extremely simple, and can be accomplished in about two days by the local Lincoln representative.

Number of Models

The basic house contains two bedrooms, bath, living room, kitchen, dining room and general utility room. The design makes provision for the convenient addition of another bedroom, and other optional features, including a garage, porch, sleeping porch, and fireplace. There is also a standard three bedroom house, and, for the immediate future, construction of Lincoln Homes as a part of the Veteran's Emergency Housing Program will be confined to these two plans. Ultimately a wide variety of homes will be produced.

Prices

The price of the basic two bedroom house will be in the \$3,500 to \$4,000 range. This includes heating unit, installation of electrical and plumbing fixtures, as well as erection on the home site. The price does not include the site itself, nor the kitchen range, refrigerator, or hot water heater. The three bedroom house will cost about \$4,500.

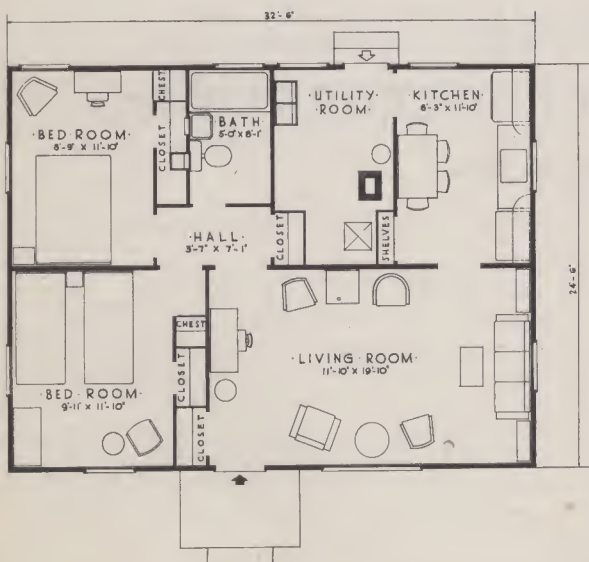
NATIONAL HOMES

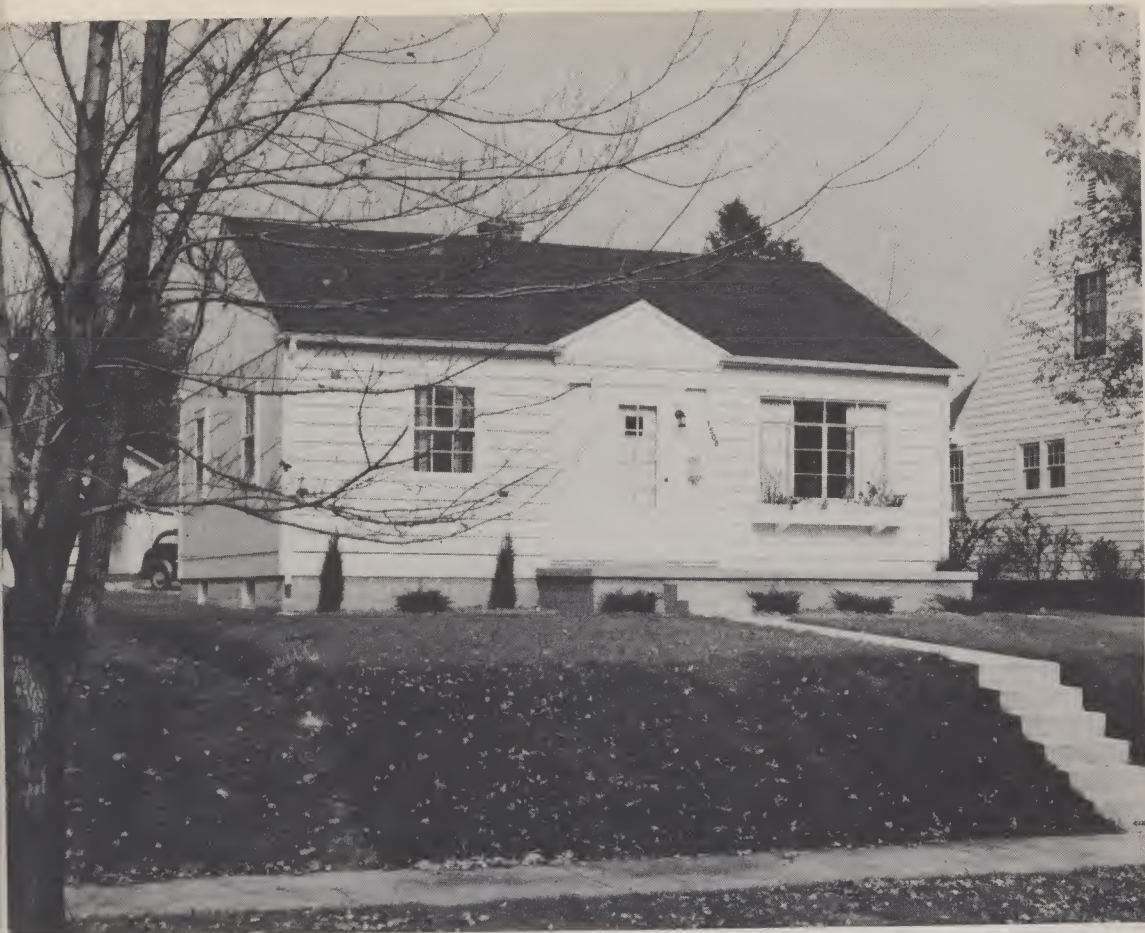


Produced by
NATIONAL HOMES CORPORATION
Lafayette, Indiana

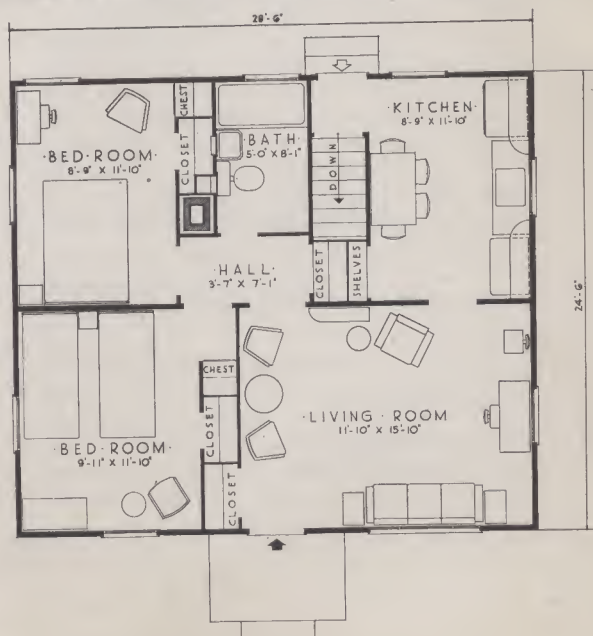


AN EFFICIENT ONE FLOOR plan arrangement available in any one of four attractive exteriors of traditional architectural design. The basement is eliminated in this model and mechanical equipment, utility, and working conveniences are provided for in the first floor utility room. The bedrooms have roomy, ceiling-height closets and built-in chests of drawers.





IN THIS MODEL THE utility, heating, and mechanical equipment are located in the full-sized basement provided by this plan. With this exception the floor plan is identical with the one shown on the preceding page, yet the architectural treatment is varied so as to give a wholly different exterior appearance. The small gable has been placed at the center of the house and the entrance is of a different style. Wide bevel siding on the front of the house and the addition of a small front terrace have further altered the appearance of the house.



Facts and Figures About National Homes

NATIONAL HOMES CORP. was founded in 1940, with assets of over a million dollars and a large, modern plant especially designed for the mass production of prefabricated homes. In the past five years National Homes has built and distributed more than 10,000 houses from this plant at Lafayette, Indiana. The company has a capacity of more than 7,500 homes per year under three shift operation, but because of the present shortages in many basic building materials, the current production amounts to only 40 houses per week.

Design

National Homes are manufactured in five basic floor plans, which may be had in nine different traditional designs. All five basic houses are available in either right or left hand plans, so that you may locate the living room side of the house on either side of your lot according to your own preference. These homes range from two bedrooms, living room, kitchen, bath, and utility room with overall measurements of 24 feet by 28 feet to a three bedroom house with a large living room, bath, kitchen, and basement having overall measurements of 24 by 36 feet. The ceiling height in all homes is 8 feet.

Construction

National Homes are constructed by the panel method of prefabrication with full room-size panel sections being completely manufactured at the factory. The 2 x 3 framing studs are spaced 16 inches on center and to this frame a special $\frac{3}{8}$ inch waterproof plywood is securely fastened to form the exterior surface of the wall. Since this plywood is a finished product, no further exterior surface material is required, although weatherboarding or shingles are sometimes applied over this plywood in order to provide variation in design and appearance. The interior walls are covered with $\frac{1}{4}$ inch interior grade plywood, being both glued and nailed to the studding. The exterior and interior surfaces of the wall panels receive a prime coat of clear sealer at the factory before shipment. All doors and windows are hung and installed in the room-size panels, and are completely trimmed, glass installed, and weatherstripped with copper and aluminum weatherstripping before leaving the factory.

One of the outstanding features of National Homes construction is the incorporation of steel columns, beams and bar joists for structural floor framing. This means that in these homes, you have rigid, well-anchored steel rather than wood supporting your floor—a new and desirable innovation

in home construction. Across the steel joists are laid the oak floor sections, with subfloor and intermediate cross joists. These are securely fastened to the steel joists with special designed clips at 16 inch intervals.

Ceiling and roof are also of panelized construction, made of heavy plywood over 2 x 4 joists and rafters. The gable ends, it will be noted, are not made of plywood, but are formed of vertical siding for architectural variation.

Other Materials Furnished

In addition to the large panels which form the floor, walls, ceiling, and roof of a National Home, the company supplies without additional charge a good many extras not included in all prefabricated homes. Bedrooms are supplied with built-in chest units completely assembled with four drawers. The closets are provided with shelves, poles and hooks. Combination storm and screen doors are provided for all exterior entrances and half screens are furnished for all windows. The double hung type windows are all of lightweight aluminum construction, which is becoming increasingly popular for new homes. The company supplies Slater's felt and 210 lb. asphalt shingles in a variety of colors to be applied at the site. Two 36 by 36 inch wall cabinets and a 60 inch combination base and sink cabinet, two corner shelves and a china storage closet are supplied as well as such decorative items as long or short shutters and flower boxes.

Distribution

Although many National Homes have been shipped as far as 800 miles from the Lafayette, Indiana plant, the company plans to restrict its sales, for the most part, to a radius of about 300 miles, which would include the middle west states of Ohio, Indiana, Illinois, Kentucky, Michigan and Wisconsin. Within this area National Homes are distributed through authorized dealers who have been selected and trained to assist you in selecting a suitable home and then to handle all of the details of erection on the site. If you live within the area served by National Homes, the company will be glad to advise you of the name and address of the dealer nearest you.

Prices

The price range of these homes is between \$4,950 for the two bedroom house to \$6,200 for the three bedroom house. This price is for the completed home ready for occupancy.

PEASEWAY HOMES



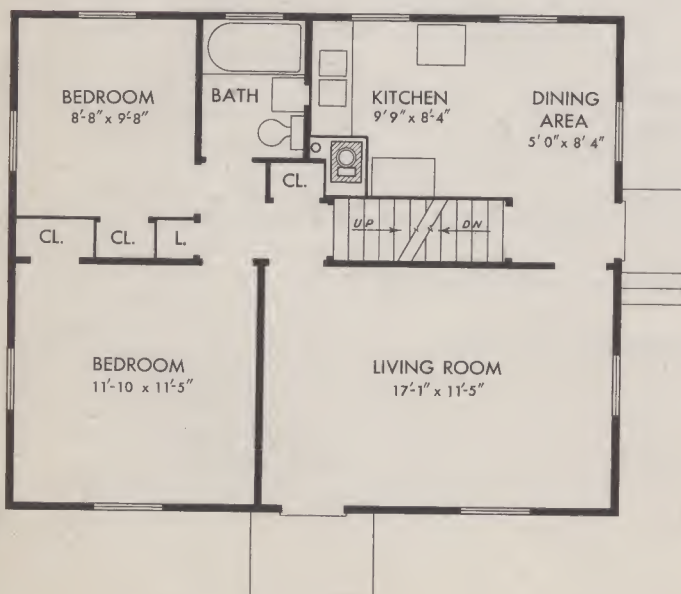
Produced by
PEASE WOODWORK COMPANY

Blue Rock and Turrill Streets

Cincinnati 23, Ohio



DURING 1946, PRODUCTION is being limited by the Pease Company to a four room, Cape Cod Colonial home, the plan of which is shown below. Two bedrooms are provided on the first floor and the attic can be finished into a large bedroom. The exterior of this house, as shown above, may be substantially altered by the addition of dormers, porches, vestibules and garages, and the use of shingles, brick or stone veneer instead of bevel siding.





CAREFUL EXAMINATION OF THE two houses pictured here reveals that they have the same basic exterior arrangement, yet the use of different types of surface covering, doors and shutters and contrasting color schemes has effectively concealed their kinship. The addition of the open porch (above) and the arcade and attached garage (below) adds to the dissimilarity of the two houses.



Facts and Figures About Peaseway Homes

THE PEASE WOODWORK CO. has been in the millwork supply business for more than a half century. In 1939 the four Pease brothers, who had inherited the business from their father, became interested in the prefabrication of houses and set up a small experimental plant early in 1940. The fifty homes manufactured that year were widely distributed in order to obtain the reaction of a number of builders operating in different areas. Since the reaction was favorable, the company decided to expand its facilities and purchased a large plant in Hamilton, Ohio. This plant has a capacity of about 2,500 houses per year on one-shift operation.

Number of Models

Before the war twenty-four different floor plans were available ranging from four rooms and bath on one floor to a two story house with six rooms and two baths. Some of these homes are shown on the preceding pages. The plans were flexible in arrangement so as to be adaptable to lots of different sizes and shapes, and variable as to exterior appearance through the use of either bevel siding, stained wood shingles, asbestos shingles, brick veneer or stone facing, and a wide choice of architectural treatment. However, in an effort to comply with the spirit of the reconversion housing program and obtain maximum production of moderately priced homes, production is being limited this year to the four room, Cape Cod Colonial house shown on page 84. There is a variety of appendages which may be added to this house, such as dormers, porches, vestibules and garages, to vary the exterior and prevent a stereotyped appearance.

How Peaseway Homes are Built

One of the unique contributions of this company is a new splined connection to join plywood sheets together without visible joints. The wall sections are made of these room-size plywood panels bonded and nailed to standard 2 x 4 framework. A layer of waterproof paper is placed over the exterior plywood sheathing and held in place by 3/8 inch thick furring strips running from top to bottom of the panel. After the prefabricated superstructure has been erected at the site, the exterior wall surfaces are covered with bevel siding or other suitable material. There is no special insulation material placed in the side walls since there are two air spaces (one between the inner plywood wall and the exterior plywood sheathing and the second between the sheathing and the siding). The openings for windows and doors are cut in the wall panels at the factory, but installation is not made until erection.

The floors are made into sections 4 feet wide and full-room length. These sections consist of 2 x 3 sub-joists, 5/16 inch plywood subflooring and 1 x 4 pre-finished oak flooring. A layer of waterproof paper is placed between the oak flooring and the plywood subflooring. In the kitchen and baths, a heavier plywood is employed and this is covered with linoleum.

The ceilings consist of plywood nailed and glued to 1 x 3 rib strips to form panels which are nailed to the ceiling joists at the site. Roof rafters and sheathing are pre-cut to exact size to be assembled at the site. Kimsul insulation, Slaters felt and 210 lb. asphalt shingles in a choice of colors also are furnished.

Windows are supplied in completely assembled units hung on adjustable sash balances and complete with weatherstripping ready to be installed in the wall panels. Doors are prefitted to size and cut for the installation of hardware. Molded trim is pre-cut to exact size and carton packed to assure against injury en route.

Other Materials Furnished

The company supplies a 66" white enameled steel kitchen double-bond sink cabinet with swinging faucet and spray attachment, a 21" x 84" utility unit, three wall cabinets, and an electric ventilating fan. For the bathroom a white enameled medicine cabinet with plate glass mirror and polished chromium accessories are furnished. Screens for all windows and doors are supplied.

Method of Distribution

Peaseway homes are sold only through authorized dealers located in Ohio, Michigan, Indiana, Illinois, Kentucky, and West Virginia. The dealer prepares the site, constructs the basement and foundation, erects the house, arranges with the purchaser as to the type of plumbing and heating equipment desired, the selection of wallpaper, paint and other decorations, installs the utilities, and prepares the house for occupancy. The dealer's crew is trained by a Pease supervisor and can put the home under roof in one day. The installation of the plumbing, heating and wiring and the painting, papering and decorating ordinarily can be completed within a period of two or three weeks.

Price

The price of the Peaseway home now being constructed varies according to the type of equipment selected by the purchaser, but with full equipment usually ranges between \$6,000 and \$7,000.

PRECISION HOMES

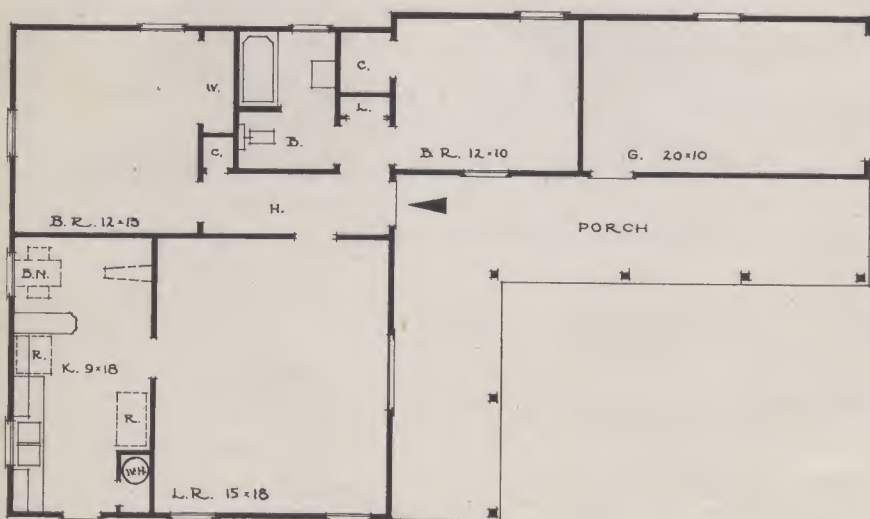


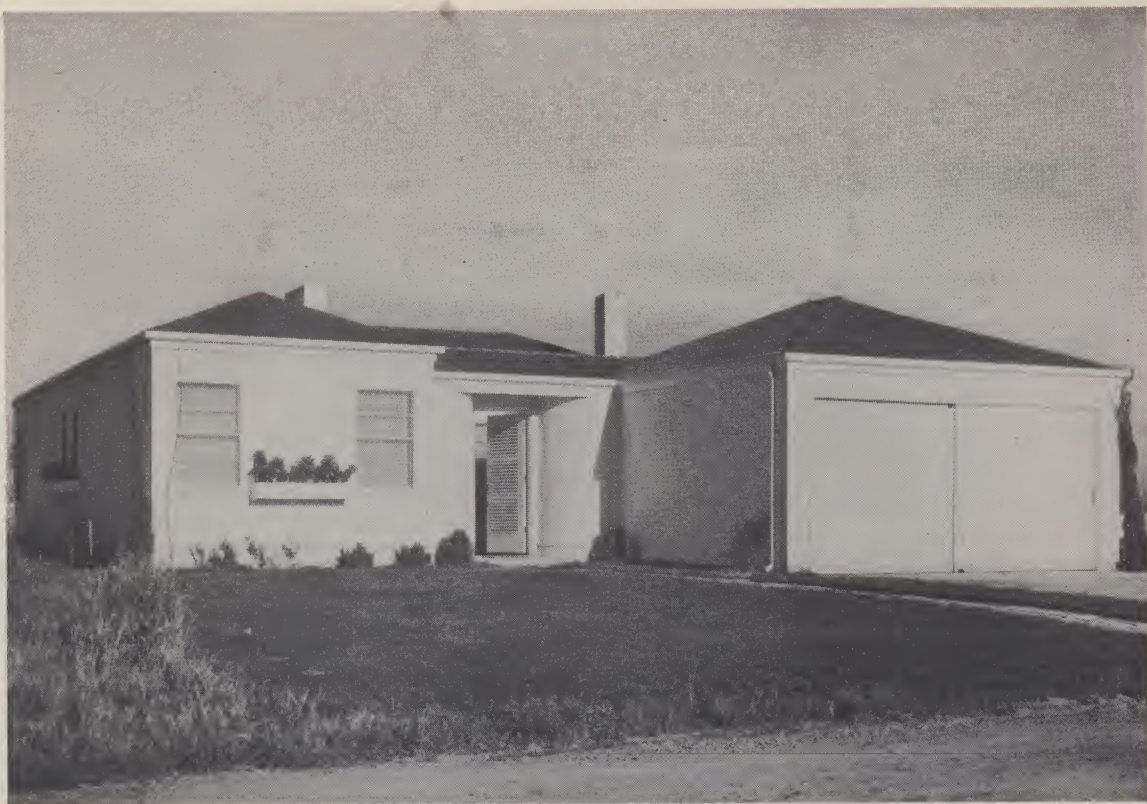
Produced by
PRECISION HOMES COMPANY

1011 East Channel Street
Stockton, California

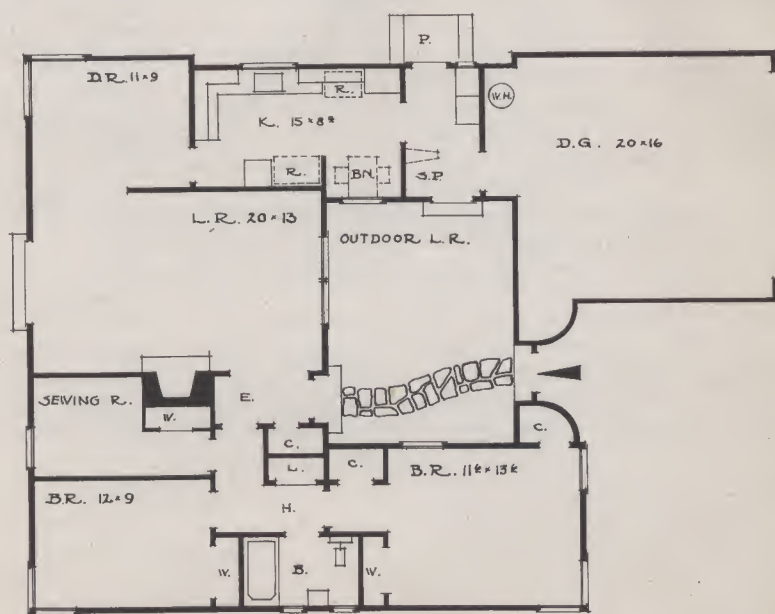


A STRAIGHTFORWARD RANCH TYPE house with a board-and-batten exterior. The extended roof line provides a spacious veranda almost 50 feet in length. The house has no basement, being heated by a modern, dual-wall furnace and having a special closet for the water heater and other utility units.





THIS HOME IS BUILT around a lovely patio suitable for a multitude of uses. It can serve as a study, a play room, a dining room, or for just plain loafing and relaxing. Three principal rooms—the master bedroom, the living room, and the kitchen-breakfast nook—overlook and share the privacy of this sheltered bit of the out-of-doors. The house also has a well-balanced and pleasing exterior with an unusual recessed entranceway providing the primary point of interest.



Facts and Figures About Precision Homes

THE PRECISION HOMES CO. and its affiliate, Central Lumber Co., have been in the prefabrication business for about eight years, and produced and sold several hundred homes prior to our entry into the war. Thereafter the company entered into the emergency housing program, and prefabricated the interesting Francesca Terrace project at Benicia, California. Precision Homes has large production capacity, and plans to produce about two thousand homes in 1947.

Number of Models

Before the war the company featured custom-built homes constructed in the Precision Homes factory to the exact specifications of the customer and his architect. This made possible the widest variety in design of the homes produced, but, since each job was a separate entity having no relation to the others, maximum speed and efficiency could not be achieved. In co-operation with the Veteran's Emergency Housing Program, current production is limited to three basic one floor models providing either two or three bedrooms. Each model can be obtained in a right hand or left hand plan and in different elevations and styles, so that a good deal of variety in appearance can be achieved. Breezeways, arcades, porches, attached or detached garages, shutters, window boxes, and other architectural treatment are supplied as optional equipment.

Materials and Construction

The Precision Homes method of wall construction consists of 4 by 8 foot panels, studded 16 inches on center, with double studs occurring every 4 feet when assembled, to form a structure of post and girder design. Exterior-grade plywood is both glued and nailed to outside walls for stressed skin construction, by which the plywood carries a portion of the building load. It has been demonstrated by tests conducted at the U. S. Forest Products Laboratory, that this stress skin type of construction has far greater relative rigidity and strength than conventional methods of on-the-site construction. The interior of the Precision panels is covered with gypsum board which may be either painted or papered, as desired by the ultimate purchaser.

Floors may be either of two types furnished by the company. The first type consists of a heavy concrete slab foundation with asphalt tile flooring laid over the concrete. The second is an all-wood floor structure of regular floor panels with hardwood

flooring in all principal rooms. Linoleum or tile is supplied for bathroom and kitchen. Ceilings and roofs are also constructed by the panel method. Asphalt shingles, wood shingles, or built-up composition roofing are also furnished and applied after the house has been erected at the site. Wood interior and exterior doors and wood-framed casement windows are installed in the wall panels at the factory and are complete with glass and hardware. Window and door screens and window blinds are all furnished by the company.

In addition to the basic superstructure of the house, Precision Homes supplies most of the equipment used in the home. Either a BX or Romex wiring system is installed at the site together with lighting fixtures in the hall, bedrooms, dining room, kitchen, bath and utility room and numerous plug-in receptacles at convenient locations in the living room. All plumbing, bathroom fixtures, including such minor items as a medicine cabinet, towel rods, soap dishes, paper holders, etc., the kitchen sink, laundry trays and a gas fired hot water heater are furnished and installed. Wood kitchen cabinets cover one entire wall of the long kitchen in each of these homes. A gas fired floor furnace or a wall panel ray are also included as standard heating unit for these homes.

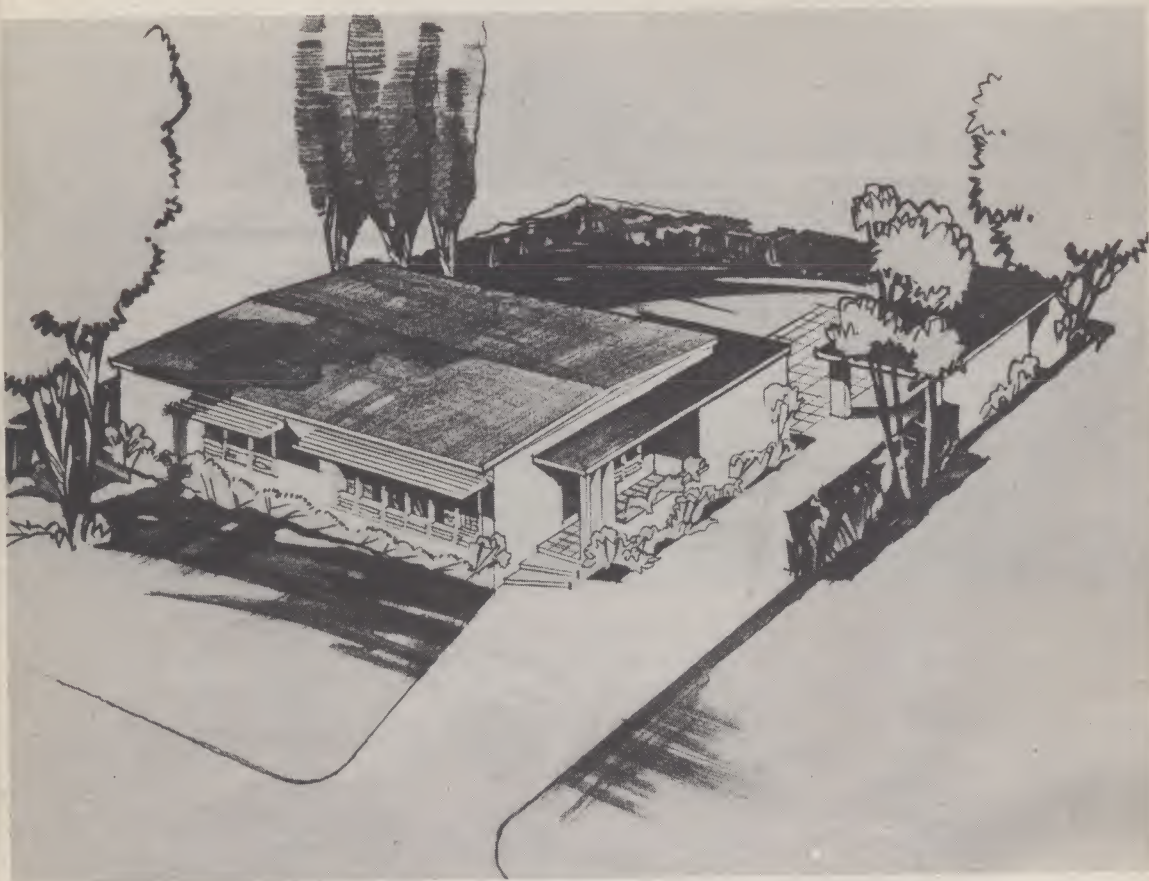
Distribution and Erection

Precision Homes serves only the state of California, and concentrates a large part of its distribution in the San Joaquin Valley. Because it confines its operation to this limited area, it is able to deal directly with many of its customers. It also employs dealer representatives who distribute Precision Homes in areas not served by the company itself. Either the company or its dealer will assume full responsibility for the complete erection, installation of utilities, and decorating according to the customer's own color scheme. Under normal conditions delivery can be made in approximately two weeks after receipt of an order and erection completed in from three to four weeks. At present lack of certain materials makes the delivery schedule indefinite.

Price

The price range of PH houses is from \$4,000 for the small two bedroom house to \$9,000 for the large three bedroom house with garage and other architectural treatment. All prices cover erection, decoration, utility systems, and all normal equipment except a refrigerator and kitchen range.

PRENCO HOMES



Produced by
**PREFABRICATION
ENGINEERING COMPANY**

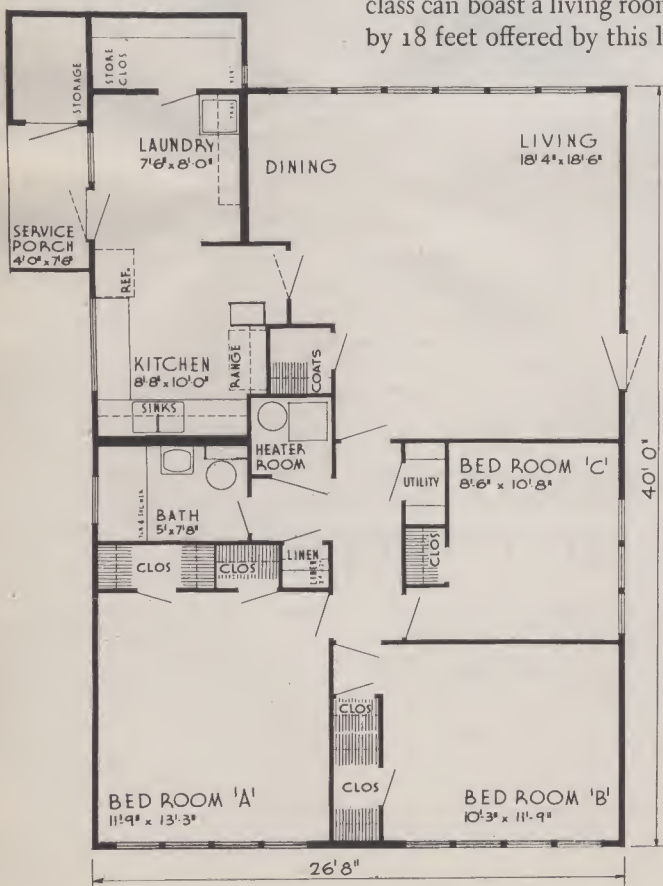
734 N. E. 55th Avenue

Portland 13, Oregon



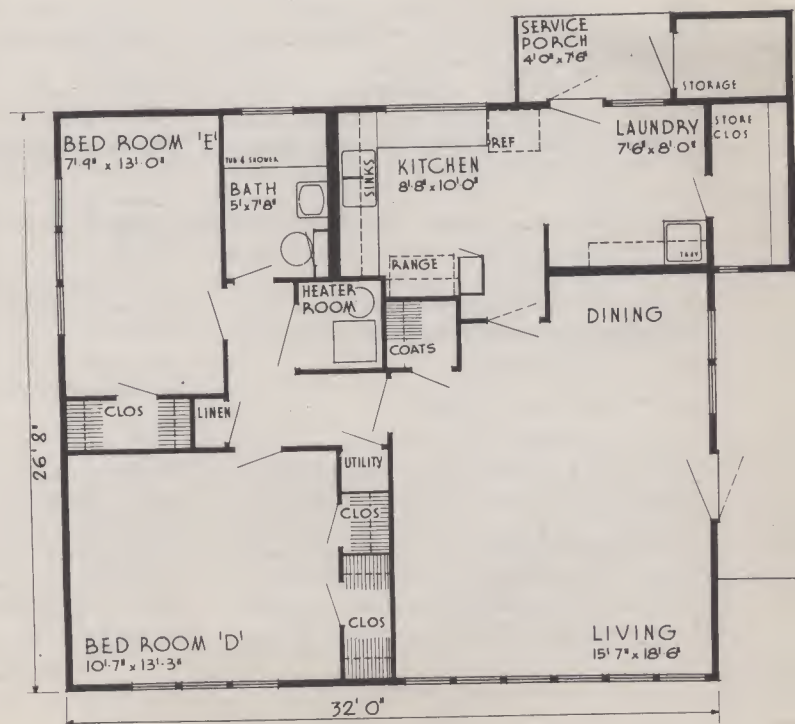
ASIDE FROM THE ATTRACTIVE modern styling of Prencos Homes, their spaciousness and generous storage facilities make them noteworthy. Few new homes, for example, which sell today in the \$6,000 price class can boast a living room having dimensions as large as the 18 feet by 18 feet offered by this home. Six closets for wearing apparel, two

for sweepers, mops, card tables and other household items, a linen closet, and two storage rooms provide a good deal more and better storage space than is to be found in most present-day houses in the same price range.





THE LARGE, CAREFULLY PLANNED, well-lighted kitchen and connecting laundry room, as shown in the floor plan below, will have strong appeal to women. Wall storage cabinets are indicated by the dotted lines over the sink, range and laundry trays. The main entrance to the house may be at the side, as shown in this house, or at the front, as illustrated on the opposite page. Preco offers a choice of ten different designs of entrance treatment.



Facts and Figures About Prencos Homes

THE PREFABRICATION ENGINEERING CO. was organized in 1937 by the C. D. Johnson Corp., a large northwest lumber company, to develop the sectional system of prefabrication which had been introduced, just a short time before, by the Tennessee Valley Authority. The headquarters of Prencos are located in Portland, and it has plants in that city and in Toledo, Oregon. During the war the company entered into the emergency housing program and produced a large number of dwelling units. With the end of hostilities it reconverted its plants to the production of the larger and more attractive peacetime homes. Due to the critical shortages of raw materials, production was limited in 1946 to a few hundred units, but the projected production for 1947 is about three thousand homes.

Contemporary Style and Design

Most prefabricators have made substantial concessions to the past by designing their houses in the architectural styles which were in vogue a century and a half ago. They employ pitched roofs (although they cost more and often serve no useful purpose) and such unusable appendages as decorative shutters, false dormers, plaques and pilasters and corner quoins. Not so with Prencos. Its homes are styled in the contemporary manner which is receiving increasing acceptance, particularly on the west coast. The savings achieved by the elimination of the pitched roof and unused appendages of traditional architecture are used to increase the size of the house itself. The two bedroom house, for example, measures 26'8" by 32' as compared with the 24' by 28' dimensions common in so many of the small two bedroom bungalows being built throughout the country today. This extra width and length add substantially to the floor area and to the spaciousness and comfort which the home affords. The three bedroom unit is 26'3" by 40', having well over 1000 square feet of floor space.

Prencos offers nine different models of homes. Four floor plan modifications of each type house satisfy various orientations which may be necessary because of the topography, direction or view. Four exterior color selections provide further variety in exterior appearance.

How Prencos Homes Are Made

Over 95 per cent of the work of constructing, erecting, and equipping Prencos homes is accomplished before the house sections leave the factory. Each section is 26'8" long, 8 feet wide, and 9 feet high, and comes complete with floors, walls, roofs, windows, doors, wiring, plumbing and heating. It will be noted, by reference to the scale drawings on the preceding pages, that the houses are carefully

planned so that the joints between sections fall at window or door openings or at partitions so as to be invisible on either the exterior or the interior. The bath, heater room and kitchen sink are located within one section so that the plumbing and heating systems can be connected at the plant.

The walls of the house are of waterproof plywood bonded on Douglas fir framing. The doors are of the flush panel type, with the exception of the kitchen door which is glazed. Windows in the living room, dining room and bedrooms have large fixed center panes with top and bottom ventilators. The bathroom, laundry and kitchen windows are double hung.

Prencos homes are fully insulated in walls, floors, and roof with aluminum foil insulation and at windows and doors with metal weatherstripping. Screens for windows and doors are also provided. Linoleum is furnished and installed in all rooms and the company does all the painting, varnishing, and papering. All bathroom fixtures and accessories, a 20 or 30 gallon automatic gas or electric hot water heater, a two compartment Briggs kitchen sink, a complete complement of kitchen cabinets and an automatic forced warm air heating unit are supplied and installed. Nonmetallic sheathed cable is used for the wiring system, with center ceiling fixtures in kitchen, laundry, bedrooms, closets, hall and dinette, bracket fixtures in bathroom and at exterior doors, and plug-in outlets at convenient locations. Other items such as a doorbell and a kitchen ventilator are also supplied.

Distribution and Erection

Prencos sells its homes throughout the Pacific coast states and in the export market directly to the ultimate purchaser and through developers, realtors, dealers, and distributors. After the foundation or basement has been completed by Prencos or its agents only eighty man hours are required at the site to complete the house for occupancy. The house sections are loaded upon truck trailers and transported directly from the factory to the site, where they are unloaded into position on the foundation and within a day or two made ready for the owner. Under normal conditions, Prencos can deliver a complete house within thirty days after an order is placed. At present, however, from sixty to ninety days are required for delivery.

Price

Prencos homes sell for \$4,250, \$4,950, \$5,850, and \$6,500 complete, depending upon the size and style. These prices include all equipment except a refrigerator and range. The basic floor plans show no fireplace but Prencos will construct one, if you desire, as optional equipment at an additional price. A carport is included with each home.

RALEIGH MASTERCRAFT HOMES

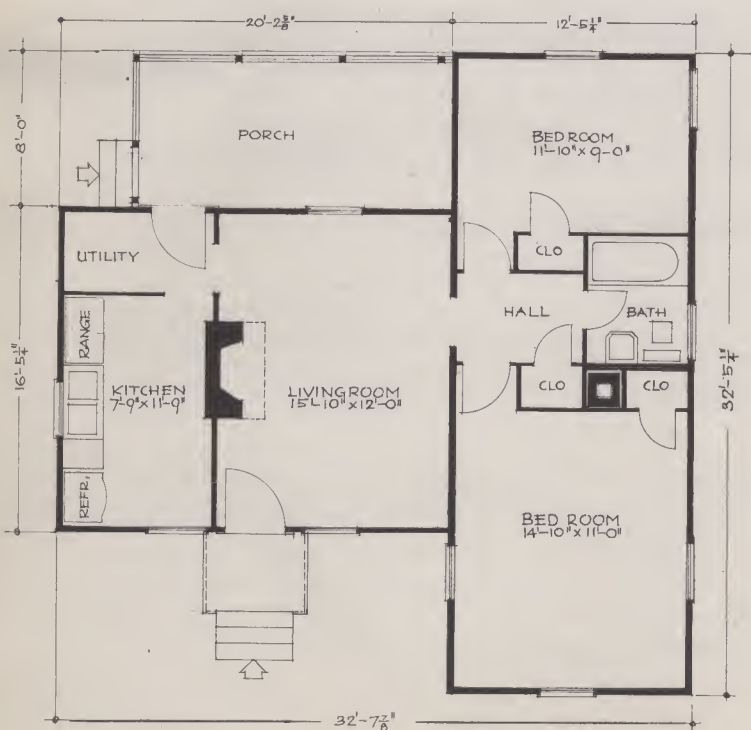


Produced by
RALEIGH MASTERCRAFT HOMES, INC.

Raleigh, North Carolina

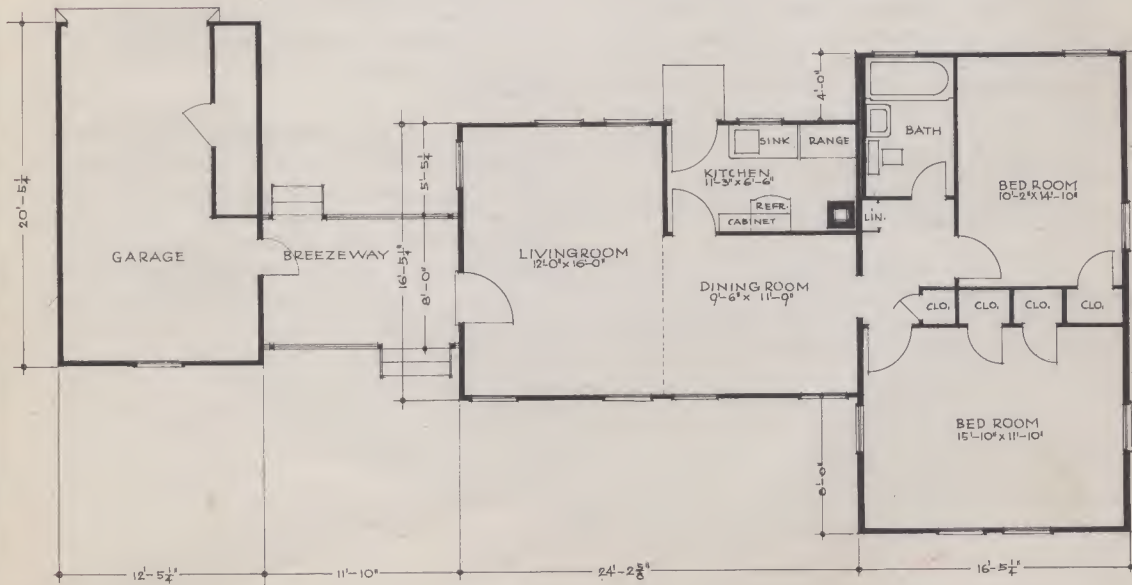


THE "STUART" A SMALL two bedroom house selling for less than \$2,500 f.o.b. factory. Additional costs which would have to be paid by the purchaser are estimated to amount to about \$3,400, making the total cost of this house on a completely erected and equipped basis about \$5,900.





THE UNFINISHED HOUSE PICTURED above illustrates the "Lee" two bedroom model with breezeway and garage. This unit sells for \$3,300 f.o.b. Raleigh, N. C., and an estimated \$3,650 is necessary for transporting, erecting, equipping, decorating and otherwise preparing it for occupancy. Thus the cost of this completed Raleigh Mastercraft Home would be about \$7,000 exclusive of land.



Facts and Figures About Mastercraft Homes

RALEIGH MASTERCRAFT HOMES, INC. is an affiliate of the Contracting & Service Corp. of New York, which has been engaged for more than twenty years in such heavy construction work as the building of subways and industrial buildings. During the war they constructed approximately one thousand houses which were transported to England in a knocked down state and quickly erected there to replace bombed dwellings. Upon the termination of Lend-Lease the North Carolina plant was converted to the production of prefabricated homes for domestic distribution.

Number of Models

The company produces six different models of Mastercraft homes, ranging from the "Longstreet," having overall dimensions of 28'5" by 24'5" and providing a living room, two bedrooms, small dinette, kitchen, bath, and utility room, to the "Davis," measuring 40'7" by 32'5" and providing a large living room and connecting dinette, kitchen and utility room, three bedrooms and bath. All of these homes are planned with first floor utility rooms for heating and laundry equipment, making a basement unnecessary for this purpose. If a basement is desired, however, the plans may be slightly modified to locate a basement stairway in the space which would otherwise serve as a utility room. The plans provide for the addition of further rooms as the need develops and of such optional features as porches, breezeways, and attached garages.

Method of Distribution

The Raleigh Company will distribute its homes in all states east of the Mississippi River through exclusive distributors having specific territories. Under normal conditions delivery can be made by the company within one week's time after the order has been received, but under present conditions about three weeks are required before the house is ready for delivery. The houses are transported by freight car or truck from the factory to the building site, and the expense of such transportation is to be borne by the purchaser.

Materials Supplied by the Company

The Raleigh Company supplies about 75 per cent of the materials which go into the completed shell of the house. Exterior walls consist of factory built panels 4 feet by 8 feet constructed of stand-

ard size studs covered with ½ inch waterproof gyplap sheathing. The bevel siding which is to be placed over the sheathing is not applied at the factory but shipped separately to be put on at the site. Double hung windows and doors complete with hardware and glass are built into these panels. The floors are pre-cut with 2 by 8 joists, sills, bridging, and plyscord subflooring supplied loose and field applied. All necessary sills and girders are furnished, and the lower framing members such as joists, sills, and girders are toxic treated for termite protection. The roof is formed into panels, 4 feet wide and as long as the roof is high, which are made of 2 by 6 rafters covered with shiplap or plyscord sheathing. The company supplies heavy asphalt strip shingles in a variety of colors, galvanized roofing nails, and Slaters felt, but these materials must be put on at the site at the purchaser's expense. The gable ends are delivered complete with vertical wood siding and louvers attached at the factory. All exterior and interior trim are furnished loose and must be applied by the purchaser at the site.

Additional Items the Purchaser Must Furnish

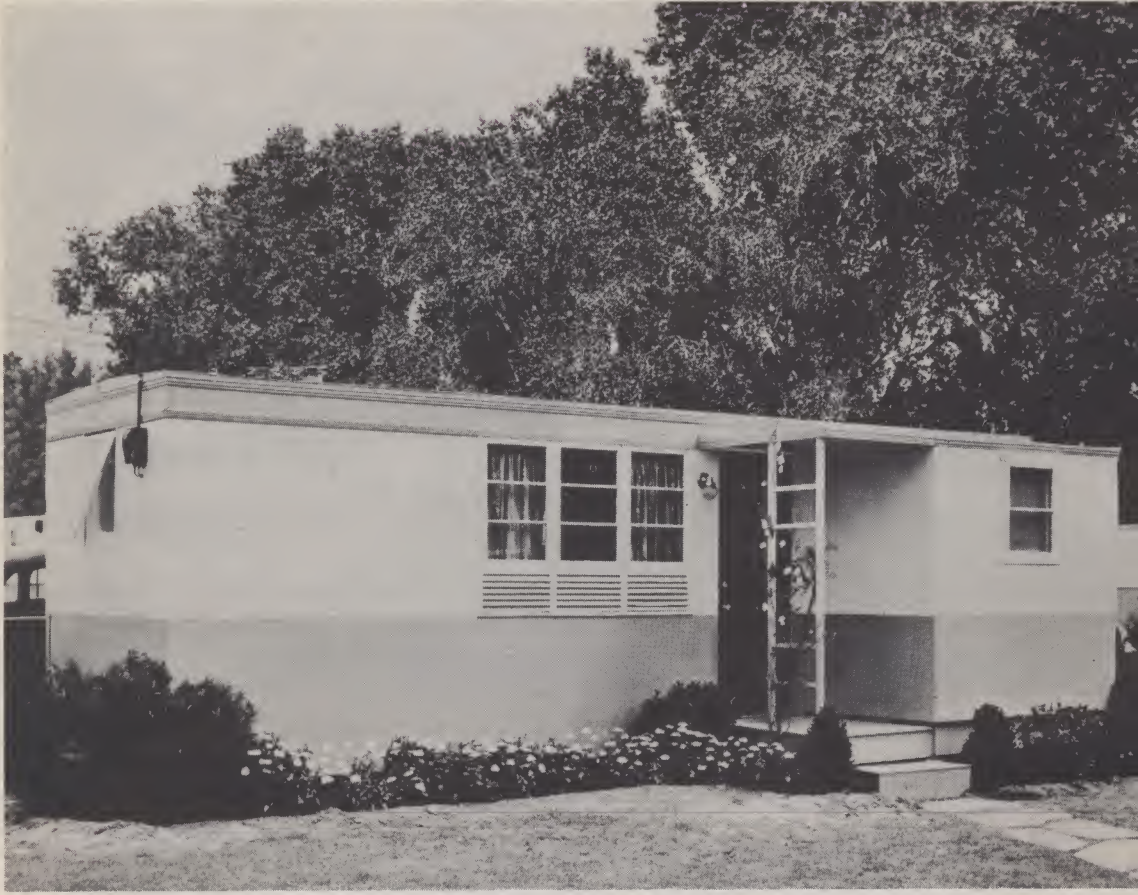
Since the Raleigh Company supplies only the materials for the basic shell of the house, the prospective purchaser must furnish the following items:

- a. Site preparation and all foundation costs
- b. Erection costs and field labor for applying shingles, siding and trim
- c. Interior wallboard or plaster material and its application
- d. Chimney or fireplace, terrace and other masonry items
- e. Finish flooring in all principal rooms and linoleum for kitchen and bath
- f. All heating, plumbing, sanitary, electrical work and fixtures
- g. Kitchen cabinets, medicine cabinets, etc.
- h. All painting, varnishing and wallpapering

Total Cost

The prices charged by the Raleigh Company for the house shell f.o.b. the North Carolina factory range from \$2,200 for the two bedroom size to \$3,000 for the largest three bedroom house. The additional items which the house purchaser must furnish would at least equal the price paid for the house shell. Thus the ultimate cost of these homes is at least double the Raleigh price, or between \$4,500 and \$7,500.

WINGFOOT HOMES



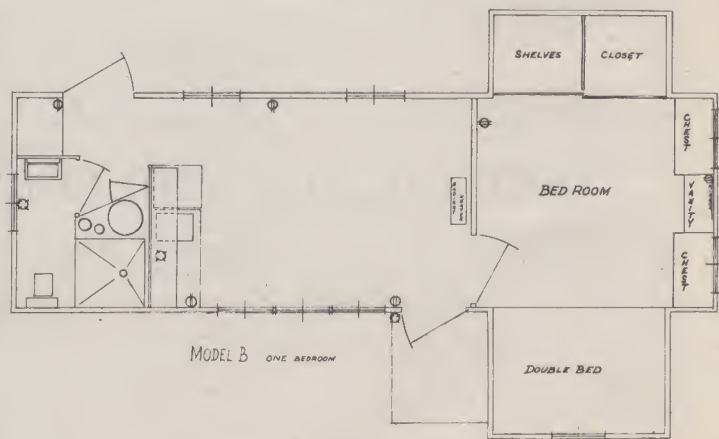
Produced by
GOODYEAR TIRE AND RUBBER COMPANY

Akron 16, Ohio



Above: Wingfoot Home styled in the southwest motif.

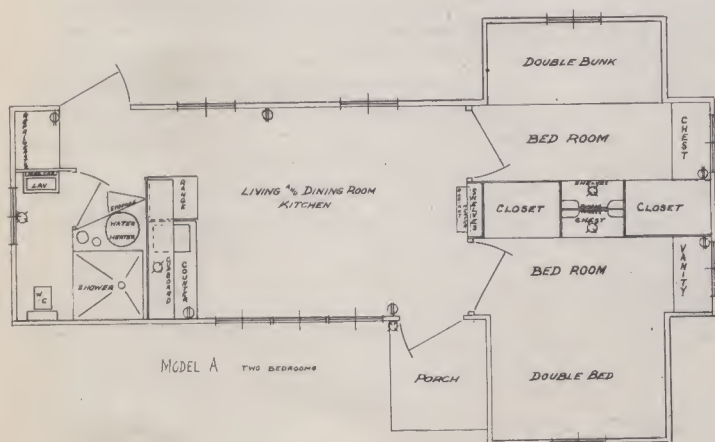
Below: Smaller bedroom of the two bedroom house showing double bunk, chest of drawers, closet and shelves. Floor plan of the one bedroom house.





Above: The living room, though small, is attractive and well planned. The large front window and two rear windows make the room airy and bright.

Below: Larger bedroom of two bedroom house showing double bed, vanity, chest and closet. Floor plan of the two bedroom house shows location of all built-in units.



Facts and Figures About Wingfoot Homes

THE WINGFOOT HOME, produced by a subsidiary of the Goodyear Tire & Rubber Co., is a unique type of prefabricated house. It was developed and first produced in 1942 at a pilot plant located at Litchfield Park, Arizona, and production at plants in Arizona and Ohio has now been perfected to the point where the company can build fifty thousand units per year if it can get the raw materials and equipment. The house is entirely built and assembled at the factory in a size which is small enough to permit delivery by truck over any highway in the country. On the truck it appears to be little more than a gigantic box, but upon arrival at the site the Wingfoot blossoms forth, with telescoping wings that pull out like drawers and a small entrance porch, into an attractive Lilliputian bungalow.

Delivered Completely Erected and Equipped

When you purchase a Wingfoot home you can rest assured that there will be no multitude of extra expenses to run up the ultimate cost. The house is delivered with the bathroom completely supplied with shower bath, toilet, lavatory and medicine cabinet. The kitchen cabinets, sink, gas range and ice refrigerator are furnished and installed. A twenty-gallon automatic hot water heater and a radiant type gas heater are in their proper locations when the house arrives. Even the bedroom furniture is built-in to achieve compactness and to affect further savings. The plumbing is connected; the wiring and fixtures are installed. All the site work required is the placing of a block foundation, the depositing of the house on this foundation and the connection of the utility systems to the public water, gas and power lines. Within an hour after the house is delivered you can relax in the quiet sanctity of your new home.

Number of Models Offered

Goodyear offers two different models of the Wingfoot home. One is a two bedroom house with a built-in double bed, vanity, chest of drawers, and closet in one bedroom, and a built-in double bunk, chest, shelves, and closet in the other bedroom. The other model has only one bedroom, which provides a built-in double bed, vanity, two chests of drawers and two closets. With the exception of these differences the two models are exactly alike. The overall dimensions are 26 feet long by 15 feet wide in the bedroom area and 8 feet wide over the rest of the house.

Priced to be Available to a New Market

It has been noted that a large part of our population has been denied the opportunity to live in a new home of their own because their income precluded payment of more than \$20 to \$35 per month for housing. The Wingfoot home, which will sell for about \$2,500, affords small families in these lower income groups with the possibility of purchasing a home for payments of no more than \$20 to \$30 per month. While the house is certainly not spacious, it provides the opportunity to be the original occupants of quarters in which the equipment is new and modern rather than worn and obsolete.

Suitable for a Wide Variety of Uses

These homes have widespread usefulness to many outside the lower income groups. Many older couples, whose children are grown and away from home, will seek smaller houses which require a minimum of upkeep and care but still affords the satisfaction of independent living. Two or three working girls can pool their resources and purchase and operate this little house for less than they would pay for furnished rooms. A Wingfoot unit would afford a room for entertainment, cooking facilities, and separate bedrooms for two girls, or joint rooms for as many as four.

Furthermore, these homes should have a substantial resale value. Because they are small and can be easily and cheaply moved these houses can be purchased and transported to a new location to serve as a guest house, a cottage at the beach or a retreat in the mountains or woods.

Materials Used in Wingfoot Construction

Exterior walls are made of heavy-grade plywood, and interior walls are of Masonite or plywood. Both interior and exterior walls are painted and various color combinations are available. The floors are five-ply plywood covered with attractive linoleum. The roofing is of Pioneer Flintkote or equivalent two-ply asbestos white top. The entire house is carefully insulated with Kimsul insulation. Window and door screens and window blinds are furnished. Lighting fixtures include a porch light, overhead light above kitchen sink, bathroom light and fixtures in both bedrooms. Six double outlets are also provided.

Directory of Prefabricators

ALABAMA

Allen Unit Construction, Inc.
Box 1415, Birmingham, Ala.
H. E. Concrete Homes, 1504 N. 17th St.,
Birmingham, Ala.
T. C. King Co., Anniston, Ala.

ARIZONA

Cabana Co., 75 W. Portland,
Phoenix, Ariz.
Prefabricated Homes, Inc., P.O. Box 1112,
Phoenix, Ariz.
Southwestern Sash & Door Co., Phoenix, Ariz.
Williams Construction & Engineering Co., P.O.
Box 344, Phoenix, Ariz.

ARKANSAS

Black Lumber Co., Corning, Ark.
Bralei Homes, Inc., P.O. Box 109, North Little
Rock, Ark.
Modern Building Manufacturers, Pine Bluff, Ark.

CALIFORNIA

Barr Lumber Co., Santa Anna, Calif.
Bates Prefabricated Structures, Burlingame, Calif.
Blackstone Homes, 11707 Wicks Street,
Roscoe, Calif.
Brown & Johnson, Los Angeles, Calif.
California Homes, 1132 M St.,
Sanger, Calif.
California Pre-Fab. Corp., 5301 Valley Blvd.,
Los Angeles, Calif.
Custom Built Homes, 601 E. Broadway, Long
Beach, Calif.
Drycemble Corp., South Gate, Calif.
F. J. Early Co., 369 Pine Street, San Francisco,
Calif.
Gamel, Inc., 174 Carroll St.,
Sunnyvale, Calif.
Haddock Engineers, 129 W. 2nd St.,
Los Angeles, Calif.
Hamill & Jones, 3029 Exposition Blvd., Los An-
geles, Calif.
Hayes Econocrete Corp., 112 W. Ninth St., Los
Angeles, Calif.
Hayward Lumber Co., P.O. Box 7029, East Los
Angeles, Calif.
Kaiser Community Homes, 875 Subway Terminal
Bldg., Los Angeles, Calif.
Kashner-Bender, Inc., 704 Spring St.,
Los Angeles, Calif.
Latisteel, Inc., 3272 E. Foothill Blvd., Pasadena,
Calif.
C. H. Lehman, Shields & Garfield Ave.,
Fresno, Calif.
Lincoln Lumber Co., Oakland, Calif.
Claude Lindsay, Inc., 824 Taroval St.,
San Francisco, Calif.

Metal Homes Co., 4041 Goodwin Ave.,
Los Angeles, Calif.
Normac, Inc., 1007 S. Grand Ave.,
Los Angeles, Calif.
Oliver-Loughland Co., 230 E. Vardugo Ave.,
Burbank, Calif.
Ply-Wel Industries, 4905 Tidewater Ave., Oak-
land, Calif.
Plywood Structures, Inc., 6307 Wilshire Blvd.,
Los Angeles, Calif.
Pre-Bilt Homes Co., 2901 S. San Pedro St.,
Los Angeles, Calif.
Precision Homes Co., Stockton, Calif.
Prefab Mfg. Co., 4085 E. Sheila St.,
Los Angeles, Calif.
Production Line Structures, 941 North La Cienga
Blvd., Los Angeles, Calif.
Quality Homes, 1022 S. Robertson Blvd., Los
Angeles, Calif.
Rand Construction Co., 6239 Wilshire Blvd.,
Los Angeles, Calif.
Security Finance & Building Co., 6513 Hollywood
Blvd., Los Angeles, Calif.
Standard Demountable Homes, Los Angeles, Calif.
Stewart & Bennet, National City, Calif.
Soule Steel Co., 1750 Army St., San Francisco,
Calif.

COLORADO

Construction Products Co., 6000 W. 13th Ave.,
Denver 15, Colo.
Durabilt Homes Co., Denver, Colo.

CONNECTICUT

City Lumber Co., 75 Third Street, Bridgeport,
Conn.
Prefab Construction Co., Dayville, Conn.

DISTRICT OF COLUMBIA

Allen Unit Construction, Inc., 3237 M St., N. W.,
Washington, D. C.
Byrne Company, 2607 Conn. Ave., N. W.,
Washington, D. C.
Hudson Supply Co., 1727 Penna Ave., N. W.,
Washington, D. C.
United States Housing Co., 1629 K Street, N.W.,
Washington, D. C.

FLORIDA

J. W. Campbell, Inc., Palatka, Fla.
Dooley's Basin & Dry Dock, Inc., Ft. Lauderdale,
Fla.
Flury & Crouch, Inc., W. Palm Beach, Fla.
Maurice Harrison Co., Hialeah, Fla.
Tec-Bilt Homes, 9535 N. E. Second Ave.,
Miami 38, Fla.

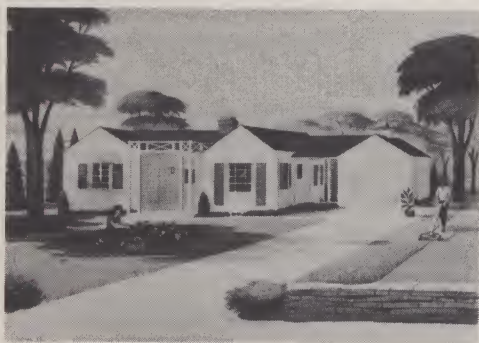
GEORGIA

Better Living, Inc., 339 W. Peachtree, N.E.,
Atlanta, Ga.

Georgia Consolidated Contracting Co., Ellaville, Ga.
 Georgia Housing Co., Macon, Ga.
 Ira Hardin Co., Atlanta, Ga.
 Knox Corporation, Thomson, Ga.
 U.S. Homes, Inc., Marietta, Ga.

ILLINOIS

Best Construction & Fabricating Co.,
 630 W. Lake St., Peoria, Ill.
 Darrow Co., Polo, Ill.
 Dorr Associates, 505 N. Michigan Ave., Chicago, Ill.
 Economy Portable Housing Co., West Chicago, Ill.
 G. B. H. Way Homes, Inc., Walnut, Ill.
 General Houses, Inc., Chicago Daily News Bldg., Chicago, Ill.
 Green's Ready-Built Homes, Rockford, Ill.
 Home Corporation of America, DeKalb, Ill.
 Home-Ola Corporation, 9 South Clinton Street, Chicago, Ill.
 Illinois Lumber Mfg. Co., Cairo, Ill.
 Liberty Homes Corp., 1 North LaSalle Street, Chicago, Ill.
 Lustron Corp., 1401 So. 55th Court, Cicero, Ill.
 Quality Homes Inc., Joliet, Ill.
 R. W. Revis, Newman, Ill.
 Riverdale Millwork Co., 341 E. 136th St., Chicago, Ill.
 Rock Island Lumber Co., Rock Island, Ill.
 Shappert Engineering Co., Belvidere, Ill.
 Structures, Inc., 130 N. Wells St., Chicago, Ill.
 Wright Co., 9317 S. Cottage Grove Ave., Chicago, Ill.



PRE-FAB INDUSTRIES

INDIANA

Barlow & Williams, Indianapolis, Ind.
 Continental Homes, Inc., Crawfordsville, Ind.
 General Industries, 3033 Wayne Trace, Ft. Wayne, Ind.
 Gunnison Homes, Inc., New Albany, Ind.
 Indiana Demountable Housing, Inc., 907 E. Michigan Ave., Indianapolis, Ind.
 Modern Builders, Inc., Evansville, Ind.

Monroe Corp., 4500 Ralston Ave., Indianapolis, Ind.
 National Homes Corp., Lafayette, Ind.
 New Century Homes, Inc., Clinton, Ind.
 Pre-Fab Industries, 1601 S. Main Street, South Bend, Ind.

IOWA

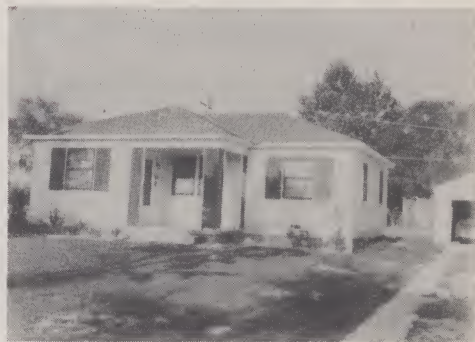
Bennett Box Co., Clinton, Iowa
 General Timber Service, Dubuque, Iowa
 Gordon Van Tine Co., Des Moines, Iowa

KANSAS

Fuller Houses, Inc., Wichita, Kans.

KENTUCKY

American Fabricators, Inc., 500 E. Main St., Louisville, Ky.
 Cumberland Homes, Middlesboro, Ky.
 General Plywood Corp., 3131 W. Market St., Louisville, Ky.



CRAWFORD COMPANY

LOUISIANA

Crawford Co., Baton Rouge, La.
 Precision Cut Homes Corp., 2337 Tulane Ave., New Orleans, La.

MAINE

Camden Shipbuilding Co., Camden, Me.
 Eastern Homes, Inc., Portland, Me.

MARYLAND

Atlantic Mill & Lumber Co., Baltimore, Md.
 Drycemble Houses, Inc., Baltimore, Md.
 Maryland Modern Housing Corp., P.O. Box 7345, Halethorpe, Baltimore, Md.
 New Century Homes, Bethesda, Md.
 Samuel Pistorio, Carroll Station, Baltimore, Md.
 Prefabricators, Inc., 3437 S. Hanover St., Baltimore, Md.
 Tovell Construction Co., 403 W. Monument Street, Baltimore, Md.

MASSACHUSETTS

Anchorage Homes, Inc., Westfield, Mass.
 Bell Building Co., 172 Union St., Worcester, Mass.

E. F. Hodgson Co., 1110 Commonwealth Ave.,
Boston, Mass.
Prebilt Co., Revere, Mass.
Resco Homes, 49 Pearl Ave., Winthrop, Mass.
Wolsey Co., 137 Green St., Malden, Mass.

MICHIGAN

Aladdin Co., Bay City, Mich.
Builders Mfg. Co., 11711 E. Eight Mile Road,
East Detroit, Mich.
Cadillac Millwork, 18901 Grand River,
Detroit 23, Mich.
Currier Lumber Co., 17507 Van Dyke Ave.,
Detroit 5, Mich.
Defoe Shipbuilding Corp., Homes Div., Bay City,
Mich.
Eddy Shipbuilding Corp., Bay City, Mich.
Evans Products Co., 15310 Fullerton Ave.,
Detroit, Mich.
Field Detroit Co., 651 W. Baltimore Street,
Detroit, Mich.
Jaeger Homes Mfg. Co., 14300 Promenade Ave.,
Detroit, Mich.
Lewis Mfg. Co., Bay City, Mich.
Lumber Fabricators, Inc., 728 Fisher Bldg.,
Detroit, Mich.
Nichols & Cox Lumber Co., Grand Rapids, Mich.
Palace Corp., Flint, Mich.
Reid Building Co., Birmingham, Mich.
Riedel Lumber Co., Marlette, Mich.
Saco Mfg. Co., Milan, Mich.
Stout Homes, Inc., Stevenson Bldg., Detroit,
Mich.
Strathmoor Co., 14000 Grand River Ave.,
Detroit, Mich.



PAGE AND HILL COMPANY

MINNESOTA

Canton Bros., Watson, Minn.
Capp Mfg. Co., 1143 Dupont Ave.,
Minneapolis, Minn.
Com-Fit Builders, Waterville, Minn.
Foss Lumber Co., Moorhead, Minn.
Page & Hill Co., 1017 Plymouth Bldg., Minne-
apolis, Minn.
Rilco Laminated Products, Inc., First National
Bank Bldg., St. Paul, Minn.

MISSISSIPPI

Green Lumber Co., Laurel, Miss.



HOME BUILDING CORP.

MISSOURI

Butler Mfg. Co., Kansas City, Mo.
Fabricated Building Corp. 308 So. Jefferson St.,
Springfield, Mo.
Fox Bros Mfg. Co., 2717 Sidney St.,
St. Louis, Mo.
Home Building Corp., Sedalia, Mo.

NEBRASKA

Economy Housing Co., Wahoo, Nebr.
General Timber Service, Inc., P.O. Box 1632,
Omaha, Nebr.



PRECISION-BUILT HOMES

NEW JERSEY

Green Hill Lumber Co., Plainfield, N. J.
Moyer Co., Linwood, N. J.
Par-Lock Appliers, 1150 Southard St.,
Trenton, N. J.
Plainfield Lumber & Supply Co., Plainfield, N. J.
Porete Mfg. Co., North Arlington, N. J.
Precision Built Homes Corp., Trenton, N. J.
Stanway Prefabricated Buildings Co., Montclair,
N. J.
Well-Built Mfg. Co., Somerville, N. J.
Weyerhaeuser Timber Co., Eastern Dist. Yards,
Newark 1, N. J.
Winner Mfg. Co., Inc., Box 399, Trenton, N. J.



GENERAL PANEL CORP.

NEW YORK

Adirondack Log Cabin Co., 143 E. 45th Street,
New York, N. Y.
American Houses, Inc., 570 Lexington Ave.,
New York, N. Y.
American Lumber Products Corp.,
103 Park Avenue, New York, N. Y.
Bennett Lumber Corp., North Tonawanda, N. Y.
Bent Steel Co., 43-24 37th Street, Long Island
City, N. Y.
Construction Fabricators, Inc., 445 Porter Ave.,
Brooklyn, N. Y.
Crouch & Beahan Co., 99 Dewey Ave.,
Rochester, N. Y.
Dade Brothers, Inc., Mineola, Long Island, N. Y.
Factory Built Homes, Inc., McDonough, N. Y.
Factory Built Mfg. Co., 420 Lexington Ave.,
New York, N. Y.
General Fabricating Co., 33 W. 42nd Street,
New York, N. Y.
General Panel Corp., 103 Park Avenue, New York,
N. Y.
Johnson Quality Homes, Inc., 270 41st Street,
Brooklyn, N. Y.
M. B. Kolb Co., 250 W. 57th Street, New York,
N. Y.
Metz Homes, Inc., Hicksville, Long Island, N. Y.
Mifflinburg Body Works, Prebilt Homes Div.,
200 Madison Ave., New York, N. Y.
Northern Prefabricating Corp., 12 Ridge St.,
Glen Falls, N. Y.
PHC-Peerless Housing Co., 300 Fourth Ave.,
New York, N. Y.
Shelter Industries, Inc., 630 Fifth Ave., New York,
N. Y.
Takapart Products Co., Freeport, Long Island,
N. Y.

NORTH CAROLINA

Charlotte Lumber & Mfg. Co., Charlotte, N. C.
Raleigh Prefabricated Homes, Inc., P.O. Box 627,
Raleigh, N. C.

OHIO

Arlington Homes Mfg. Co., 1300 W. 3rd St.,
Cleveland 13, Ohio

Bruscino Builders, 17309 Madison Ave.,
Cleveland, Ohio
Cosy Cottages, Inc., 1895 So. High St.,
Columbus, Ohio
Forest City Material Co., 17903 St. Clair Ave.,
Cleveland, Ohio
General Building Units, Dayton, Ohio
Hilz Homes Co., Toronto, Ohio
Industrial Supply Co., Grafton, Ohio
Martin Steel Products Co., 1111 W. Longview
Ave., Mansfield, Ohio
Midwest Fabricating Co., Box 334, Mansfield,
Ohio
Pease Woodwork Co., Blue Rock & Turrill Streets,
Cincinnati, Ohio
Riderwood Lumber Processing Co., 301 Ingalls
Bldg., Cincinnati, Ohio
Sanford, Inc., Avon Lake, Ohio
Skill-Craft Homes, Inc., 1860 E. Market St.,
Akron, Ohio
Steelcraft Mfg. Co., 16 E. 72nd Street, Cincinnati,
Ohio
Sturdy-Bilt Homes, Inc., 618-20 Madison Ave.,
Toledo, Ohio
Toledo Factory Built Homes, 415 Madison Ave.,
Toledo, Ohio
Wingfoot Homes, Inc., 1144 E. Market Street,
Akron, Ohio



SOUTHERN MILL & MFG. CO.

OKLAHOMA

W. P. Atkinson Lumber Co., Oklahoma City,
Okla.
Southern Mill & Mfg. Co., P.O. Box 1087,
Tulsa, Okla.

OREGON

Keith Brown Building Supply, Salem, Ore.
M. D. Hicklin, Oswego, Ore.
Horsley Structures, Inc., Eugene, Ore.
Prefabrication Engineering Co., American Bank
Building, Portland, Ore.
Timber Structures, Inc., P.O. Box 3782, Portland,
Oreg.



ADMIRAL HOMES

PENNSYLVANIA

Adequate Housing, Inc., Fidelity-Philadelphia Bldg., Philadelphia, Pa.
 Admiral Homes, Inc., West Newton, Pa.
 Allied Housing Associates, Langhorne, Pa.
 Harmon Corp., 1431 Land Title Bldg., Philadelphia 10, Pa.
 Johnson Co., Sharon, Pa.
 P & K Woodcrafting Co., Canonsburg, Pa.
 Pan-L-Homes Co., 305 Magee Bldg., Pittsburgh, Pa.
 Penna Dri-Bilt Housing Co., Emporia, Pa.
 Precision Built Homes, 301 Green Ridge, Scranton, Pa.
 Rieger Co., 4634 Parrish St., Philadelphia, Pa.
 Sunnybrook, Inc., Glenside, Pa.
 Vacuum Concrete, 4210 Samson Street, Philadelphia, Pa.
 Welcome Homes, Inc., West Chester, Pa.
 West Penn Sand & Gravel Co., 12 McCandless Ave., Pittsburgh, Pa.

SOUTH CAROLINA

Conway Homes, Inc., Conway, S. C.



CAPITAL PREFABRICATORS

TEXAS

American Prefabricators, Garland, Texas
 Capital Prefabricators, Inc., 6616 Dallas Highway, Austin, Texas
 General Housing Co., 2121 N. Beckley, Dallas, Texas



HOUSTON READY-CUT HOUSE CO.

Houston Ready-Cut House Co., 3601 Polk Ave., Houston, Texas
 Klinger Mfg. Co., San Antonio, Texas
 R. G. LeTourneau, Inc., Longview, Texas
 Meyers Construction Co., Raymondville, Texas
 Panhandle American Houses, Amarillo, Texas
 Southwest American Houses, Houston, Texas
 Texas Prefabricated Housing Co., Dallas 9, Texas

UTAH

Anderson Lumber Co., Ogden, Utah

VERMONT

Solar Homes Co., Brattleboro, Vt.

VIRGINIA

Lincoln Industries, Inc., Marion, Va.
 Pre-Fab Industries Corp., Richmond, Va.

WEST VIRGINIA

Minter Homes Corp., Huntington, W. Va.
 Scott Lumber Co., 1112 Chapline Street, Wheeling, W. Va.

WASHINGTON

Brady Construction Co., 707 Spokane Street, Seattle, Wash.
 Buffelen Lbr. & Mfg. Co., Lincoln Ave. & Taylor Way, Tacoma, Wash.
 Dunham Const. Co., 1110 Baily St., Seattle, Wash.
 Farwest Sales & Engineering, 6420 S. Tacoma Way, Tacoma, Wash.
 Matheny & Bacon, 1710 Fourth Ave., So., Seattle, Wash.
 Modelow Co., 3400-16th W., Seattle, Wash.
 North Gaines Lumber Co., Auburn, Wash.
 Precision Builders, 3116 S. Oakes St., Tacoma, Wash.
 Preco Corp., Bellingham, Wash.
 Prefabricated Products Co., 4000 Iowa, Seattle 6, Wash.
 Rowe & Thompson, 9004 So. 19th St., Tacoma, Wash.
 South Bend Fabricating, South Bend, Wash.

Standard Prefabricating Corp., 5400 Marginal
Way, Seattle, Wash.
Tacoma Lumber Fabricating Co., P.O. Box 1133,
Tacoma, Wash.

Western Home Builders, 615 Alaska Ave., Seattle,
Wash.

Check List

WHAT TO LOOK FOR IN BUYING A HOME

A. Does the Price Include these Materials and Equipment?

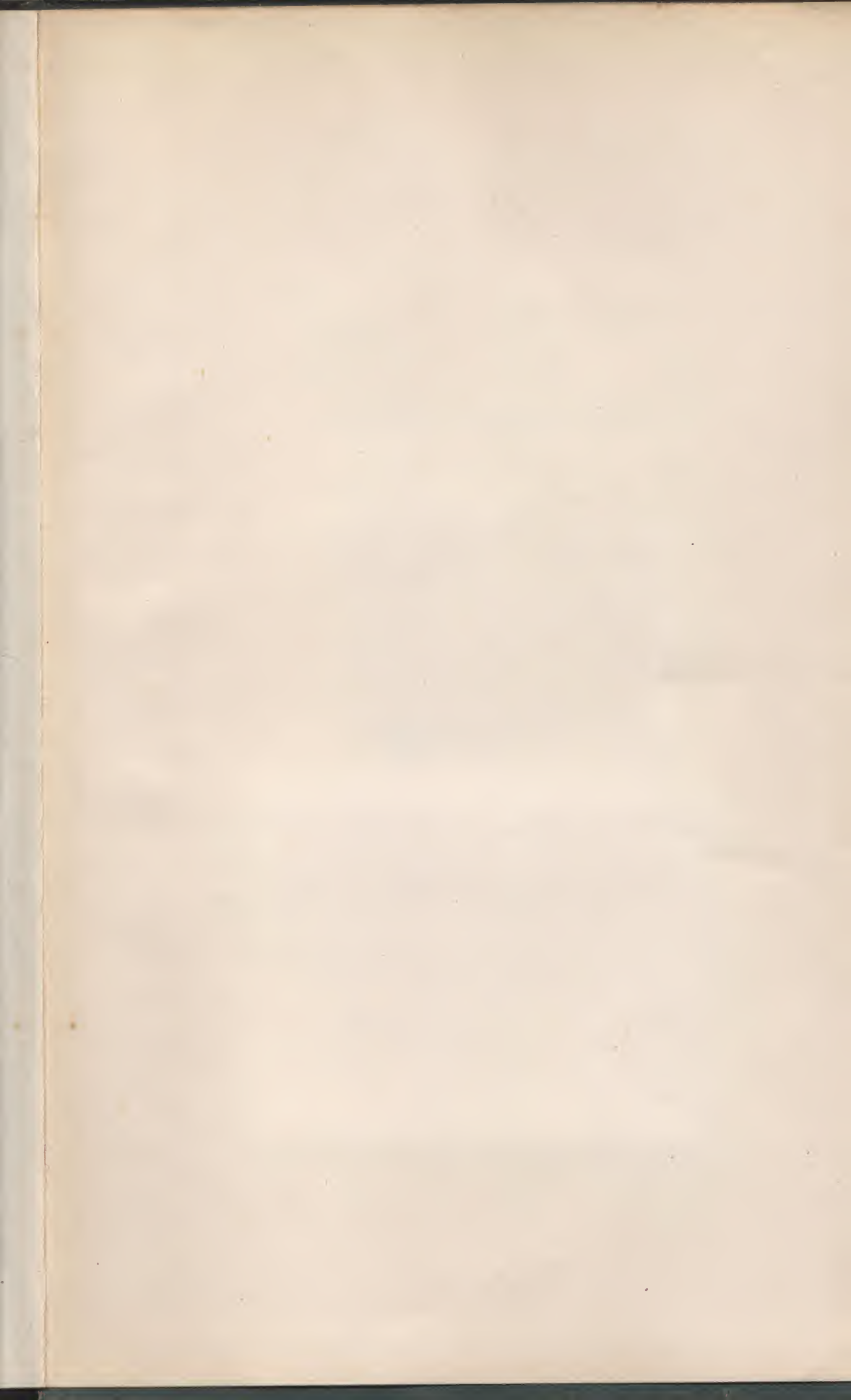
Item	Furnished	Not Furnished	Estimated Additional Cost	Item	Furnished	Not Furnished	Estimated Additional Cost
Excavating & Grading				Subflooring			
Foundation or Basement				Hardwood Finish Flooring			
Waterproofing Basement				Linoleum for Kitchen and Bath			
Drainage Tile Around Base- ment Wall				Building Paper Between Subflooring & Finished Flooring			
Foundation Vents				Roof and Ceiling			
Basement Windows & Frames				Rafters, Ridges, Collar Beams, etc.			
Sill and Anchor Bolts				Sheathing			
Exterior Walls				Slater's Felt			
Studs, Plates & Sheathing				Roofing Shingles, Built-up Metal, Slate			
Insulation				Ceiling Joists, Bridging Headers, Plates & Stripping			
Vapor Seal				Lath & Plaster or Wallboard			
Building Paper Between Sheathing and Exterior Surface Material				Doors and Windows			
Siding, Shingles, Stucco or Masonry Veneer				Exterior & Interior Doors			
Painting				Door Frames & Trim			
Interior Walls				Window Sash with Glass			
Lath & Plaster or Wallboard				Frames and Balances			
Woodwork Trim				Window and Door Screens			
Varnish & Stain				Shutters			
Wallpaper or Paint				Weatherstripping			
Floors				Hardware: hinges, lock sets, window fixtures, screen hangers, etc.			
Joists and Bridging							

Item	Furnished	Not Furnished	Estimated Additional Cost	Item	Furnished	Not Furnished	Estimated Additional Cost
Sheet Metal				Laundry Trays			
Gutters				Laundry Machine			
Downspouts				Water Heater			
Door & Window Flashing				Water Softener & Condi- tioner			
Valleys & Ridges				Exterior Hose Bibs			
Termite Shield							
Chimneys				Heating			
Fireplace				Warm Air			
Stairs and Hand Rail				Steam			
Basement				Hot Water			
Second Floor or Attic				Oil Storage Tank (where oil burner is employed)			
Cabinets and Interior Detail				Electric Wiring			
Kitchen Cabinets				Overhead Fixtures—Kitch- en, Utility Room, Base- ment, Dining Room, Bath			
Cupboards				Wall Lights			
Broom Closet				Duplex Receptacles			
Bookcases				Switches			
Shelves in Closets				Door Bell			
Clothes Hooks & Hanger Rods				Radio Outlet			
Built-in Chests				Telephone Outlet			
Towel Rods, Paper Holders, Door Stops, etc.							
Plumbing				Porches and Terraces Steps			
Kitchen Sink				Garage			
Dishwasher				Landscaping			
Garbage Disposal				Grading			
Bathtub				Seeding or Sodding			
Lavatory				Planting			
Toilet				Walks and Drives			

B. Structural Factors to be Considered

Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory
<p>Load Capacity: The use of undersize or inferior materials for studs, joists, or rafters may result in sagging floors and roofs and cracked walls. The builder should guarantee that the structure is heavy enough to sustain a load of 40 pounds per square foot on the first floor, 30 pounds on the second floor, and 20 pounds on pitched roofs. In northern climates where annual snowfall exceeds 60 inches the roof structure should be heavy enough to support 30 pounds per square foot.</p>		<p>and is exposed to the weather, it should be bonded with waterproof, resinous glue and meet the requirements of Commercial Standard CS45-40 of the National Bureau of Standards.</p>	
		<p>Chimneys: All chimneys and flues should have masonry foundations and should extend at least 2 feet above flat roofs and one foot above the highest ridge of a pitched roof. Fire clay flue linings should be built into all chimneys, the walls of which are less than 8 inches thick.</p>	
<p>Foundation: However carefully the superstructure of a house may be framed, an inadequate foundation will result in uneven settling and cracking of plaster or bathroom tile. Foundation walls and piers must be large enough to spread the weight over the supporting subsoil and deep enough to extend below the frost line and the effects of winter freezes and thaws. Eight inches is usually the minimum width for foundation walls, and these should be supported by concrete footings measuring from 14 inches to 20 inches across. Basement walls should be waterproofed and drainage tile laid around the basement footing in order to prevent the accumulation of soil water along the wall surface.</p>		<p>Insulation: In order to have effective insulation the ceilings and floors of a house, as well as its exterior walls, must be fully insulated and windows and doors must be weatherstripped. Homes with very large window areas should be supplied with double pane windows having an insulating air space between the two glass surfaces.</p>	
		<p>Electrical Wiring: Both the materials and the workmanship employed in wiring a house should comply with the National Electrical Code. Several municipalities have passed ordinances requiring observance of this code, and fire insurance companies may refuse to issue policies covering premises which are not properly wired.</p>	
<p>Protection Against Termites: In order to protect a frame house against termites a metal shield, extending 4 or 5 inches on either side of the foundation, should be placed between the foundation and the wooden superstructure. When the house is built without a basement, air vents should be installed in the foundation walls to prevent dead air pockets beneath the frame construction.</p>		<p>Plumbing: Materials and installation should be in compliance with the "Plumbing Manual" (BMS 66) issued by the National Bureau of Standards in 1940.</p>	
<p>Wall Framing and Exterior Surface: In order to compensate for the framing members which must be omitted to provide a door or window opening, double studs should be used at either side and double 2x4 headers placed across the top of such openings. Where plywood is employed as the exterior surface material</p>		<p>Materials and Structure which meet F.H.A. Requirements: The F.H.A. will not insure a loan on a new house unless the materials and methods of construction meet minimum requirements established by this federal agency. Since most prefabricators have submitted their houses to F.H.A. for its approval, a prospective purchaser should ascertain from his regional F.H.A. office whether the prefabricated house of his choice meets its material and structural requirements.</p>	







✓ RS

728.8

B-3079

Carr

... Prefabricated houses

WITHDRAWN

